DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
2 3/8	6.65	E-75 EU	6,300	138,200	0.280	1.815	1.843	0.867	1.733	15,474	15,599	NC26	3 3/8	1 3/4	6,900	313,700	3,900	1.10	9	10	7.17	3 3/16	1 5/8	0.134	0.110	2 3/8
	6.65	E-75 EU	6,300	138,200	0.280	1.815	1.843	0.867	1.733	15,474	15,599	HT26	3 3/8	1 3/4	8,700	313,700	5,200	1.38	9	12	7.25	NA	1 5/8	0.134	0.111	
	6.65	E-75 EU	6,300	138,200	0.280	1.815	1.843	0.867	1.733	15,474	15,599	2-3/8 SLH90	3 1/4	1 13/16	6,900	270,200	3,700	1.10	9	10	7.00	3 1/32	1 11/16	0.134	0.107	
2 3/8	6.65	X-95 EU	7,900	175,100	0.280	1.815	1.843	0.867	1.733	19,600	19,759	NC26	3 3/8	1 3/4	6,900	313,700	3,900	0.87	9	10	7.17	3 1/4	1 5/8	0.134	0.110	2 3/8
	6.65	X-95 EU	7,900	175,100	0.280	1.815	1.843	0.867	1.733	19,600	19,759	HT26	3 3/8	1 3/4	8,700	313,700	5,200	1.10	9	12	7.25	NA	1 5/8	0.134	0.111	
	6.65	X-95 EU	7,900	175,100	0.280	1.815	1.843	0.867	1.733	19,600	19,759	2-3/8 SLH90	3 1/4	1 13/16	6,900	270,200	3,700	0.87	9	10	7.00	3 3/32	1 11/16	0.134	0.107	
2 3/8	6.65	G-105 EU	8,800	193,500	0.280	1.815	1.843	0.867	1.733	21,663	21,839	NC26	3 3/8	1 3/4	6,900	313,700	3,900	0.78	9	10	7.17	3 9/32	1 5/8	0.134	0.110	2 3/8
	6.65	G-105 EU	8,800	193,500	0.280	1.815	1.843	0.867	1.733	21,663	21,839	HT26	3 3/8	1 3/4	8,700	313,700	5,200	0.99	9	12	7.25	NA	1 5/8	0.134	0.111	
	6.65	G-105 EU	8,800	193,500	0.280	1.815	1.843	0.867	1.733	21,663	21,839	2-3/8 SLH90	3 1/4	1 13/16	6,900	270,200	3,700	0.78	9	10	7.00	3 1/8	1 11/16	0.134	0.107	
2 3/8	6.65	S-135 EU	11,300	248,800	0.280	1.815	1.843	0.867	1.733	27,853	28,079	NC26	3 5/8	1 1/2	9,000	390,300	4,900	0.80	9	10	7.62	3 13/32	1 3/8	0.132	0.117	2 3/8
	6.65	S-135 EU	11,300	248,800	0.280	1.815	1.843	0.867	1.733	27,853	28,079	HT26	3 3/8	1 5/8	9,500	353,400	5,700	0.84	9	12	7.35	NA	1 1/2	0.133	0.112	
	6.65	S-135 EU	11,300	248,800	0.280	1.815	1.843	0.867	1.733	27,853	28,079	2-3/8 SLH90	3 1/4	1 11/16	7,700	311,500	4,200	0.68	9	10	7.10	3 7/32	1 9/16	0.133	0.109	
	6.65	S-135 EU	11,300	248,800	0.280	1.815	1.843	0.867	1.733	27,853	28,079	GPDS26	3 1/2	1 11/16	9,700	333,900	5,800	0.86	9	10	7.35	3 5/16	1 9/16	0.133	0.112	
2 3/8	6.65	Z-140 EU	11,700	258,000	0.280	1.815	1.843	0.867	1.733	28,884	29,119	XT24	3 1/8	1 1/2	9,500	261,500	5,700	0.81	10	15	7.32	2 15/16	1 3/8	0.131	0.112	2 3/8
	6.65	Z-140 EU	11,700	258,000	0.280	1.815	1.843	0.867	1.733	28,884	29,119	XT26	3 3/8	1 5/8	12,600	330,600	7,600	1.08	10	15	7.52	3 1/32	1 1/2	0.132	0.115	
	6.65	Z-140 EU	11,700	258,000	0.280	1.815	1.843	0.867	1.733	28,884	29,119	HT26	3 3/8	1 5/8	9,500	353,400	5,700	0.81	9	12	7.35	NA	1 1/2	0.133	0.112	
	6.65	Z-140 EU	11,700	258,000	0.280	1.815	1.843	0.867	1.733	28,884	29,119	GPDS26	3 1/2	1 5/8	10,500	353,400	6,300	0.90	9	10	7.39	3 5/16	1 1/2	0.133	0.113	
2 3/8	6.65	V-150 EU	12,500	276,400	0.280	1.815	1.843	0.867	1.733	30,947	31,199	XT24	3 1/8	1 3/8	10,400	295,400	6,200	0.83	10	15	7.41	2 15/16	1 1/4	0.130	0.113	2 3/8
	6.65	V-150 EU	12,500	276,400	0.280	1.815	1.843	0.867	1.733	30,947	31,199	XT26	3 3/8	1 1/2	13,200	367,400	7,900	1.06	10	15	7.62	3	1 3/8	0.131	0.117	
	6.65	V-150 EU	12,500	276,400	0.280	1.815	1.843	0.867	1.733	30,947	31,199	HT26	3 3/8	1 1/2	10,100	390,300	6,100	0.81	9	12	7.45	NA	1 3/8	0.131	0.114	
	6.65	V-150 EU	12,500	276,400	0.280	1.815	1.843	0.867	1.733	30,947	31,199	GPDS26	3 1/2	1 1/2	11,200	390,300	6,700	0.90	9	10	7.48	3 9/32	1 3/8	0.132	0.114	
2 7/8	6.85	E-75 IU	8,100	135,900	0.217	2.441	1.812	1.121	2.241	9,907	10,467	NC26	3 3/8	1 3/4	6,900	313,700	3,900	0.85	9	10	7.19	3 9/32	1 5/8	0.236	0.110	2 7/8
	6.85	E-75 IU	8,100	135,900	0.217	2.441	1.812	1.121	2.241	9,907	10,467	HT26	3 3/8	1 3/4	8,700	313,700	5,200	1.07	9	12	7.27	NA	1 5/8	0.235	0.111	
	6.85	E-75 EU	8,100	135,900	0.217	2.441	1.812	1.121	2.241	9,907	10,467	NC31	4 1/8	2 5/32	11,500	434,500	6,200	1.42	9	11	7.88	3 11/16	2 1/32	0.239	0.120	
	6.65	E-75 IU	8,100	135,900	0.217	2.441	1.812	1.121	2.241	9,907	10,467	XT26	3 3/8	1 3/4	11,500	290,900	6,900	1.42	10	15	7.43	2 29/32	1 5/8	0.234	0.114	
	6.85	E-75 EU	8,100	135,900	0.217	2.441	1.812	1.121	2.241	9,907	10,467	HT31	4	2 5/32	14,900	434,500	8,900	1.84	9	13	7.83	3 1/2	2 1/32	0.239	0.120	
	6.85	E-75 EU	8,100	135,900	0.217	2.441	1.812	1.121	2.241	9,907	10,467	XT31	4	2 3/8	13,200	309,100	7,900	1.63	10	15	7.75	3 13/32	2 1/4	0.242	0.118	
2 7/8	6.85	X-95 IU	10,200	172,100	0.217	2.441	1.812	1.121	2.241	12,548	12,940	NC26	3 1/2	1 1/2	8,800	390,300	4,900	0.86	9	10	7.50	3 3/8	1 3/8	0.234	0.115	2 7/8
	6.85	X-95 IU	10,200	172,100	0.217	2.441	1.812	1.121	2.241	12,548	12,940	HT26	3 3/8	1 3/4	8,700	313,700	5,200	0.85	9	12	7.27	NA	1 5/8	0.235	0.111	
	6.85	X-95 EU	10,200	172,100	0.217	2.441	1.812	1.121	2.241	12,548	12,940	NC31	4 1/8	2 5/32	11,500	434,500	6,200	1.13	9	11	7.88	3 3/4	2 1/32	0.239	0.120	
	6.65	X-95 IU	10,200	172,100	0.217	2.441	1.812	1.121	2.241	12,548	12,940	XT26	3 3/8	1 3/4	11,500	290,900	6,900	1.13	10	15	7.43	3 1/32	1 5/8	0.234	0.114	
	6.85	X-95 EU	10,200	172,100	0.217	2.441	1.812	1.121	2.241	12,548	12,940	HT31	4	2 5/32	14,900	434,500	8,900	1.46	9	13	7.83	3 19/32	2 1/32	0.239	0.120	
	6.85	X-95 EU	10,200	172,100	0.217	2.441	1.812	1.121	2.241	12,548	12,940	XT31	4	2 3/8	13,200	309,100	7,900	1.29	10	15	7.75	3 1/2	2 1/4	0.242	0.118	
2 7/8	6.85	G-105 IU	11,300	190,300	0.217	2.441	1.812	1.121	2.241	13,869	14,020	NC26	3 5/8	1 3/4	7,200	313,700	3,900	0.64	9	10	7.46	3 13/32	1 5/8	0.236	0.114	2 7/8
	6.85	G-105 IU	11,300	190,300	0.217	2.441	1.812	1.121	2.241	13,869	14,020	HT26	3 3/8	1 3/4	8,700	313,700	5,200	0.77	9	12	7.27	NA	1 5/8	0.235	0.111	
	6.85	G-105 EU	11,300	190,300	0.217	2.441	1.812	1.121	2.241	13,869	14,020	NC31	4 1/8	2 5/32	11,500	434,500	6,200	1.02	9	11	7.88	3 13/16	2 1/32	0.239	0.120	
	6.65	G-105 IU	11,300	190,300	0.217	2.441	1.812	1.121	2.241	13,869	14,020	XT26	3 3/8	1 3/4	11,500	290,900	6,900	1.02	10	15	7.43	3 1/16	1 5/8	0.234	0.114	
	6.85	G-105 EU	11,300	190,300	0.217	2.441	1.812	1.121	2.241	13,869	14,020	HT31	4	2 5/32	14,900	434,500	8,900	1.32	9	13	7.83	3 5/8	2 1/32	0.239	0.120	
	6.85	G-105 EU	11,300	190,300	0.217	2.441	1.812	1.121	2.241	13,869	14,020	XT31	4	2 3/8	13,200	309,100	7,900	1.17	10	15	7.75	3 17/32	2 1/4	0.242	0.118	
2 7/8	6.85	S-135 IU	14,500	244,600	0.217	2.441	1.812	1.121	2.241	17,832	17,034	NC26	3 5/8	1 1/2	9,000	390,300	4,900	0.62	9	10	7.64	3 17/32	1 3/8	0.234	0.117	2 7/8
	6.85	S-135 IU	14,500	244,600	0.217	2.441	1.812	1.121	2.241	17,832	17,034	HT26	3 1/2	1 1/2	12,100	390,300	7,300	0.83	9	12	7.60	3 5/16	1 3/8	0.233	0.116	
	6.85	S-135 EU	14,500	244,600	0.217	2.441	1.812	1.121	2.241	17,832	17,034	NC31	4 1/8	2 1/8	11,900	447,100	6,400	0.82	9	11	7.91	3 29/32	2	0.239	0.121	
	6.65	S-135 IU	14,500	244,600	0.217	2.441	1.812	1.121	2.241	17,832	17,034	XT26	3 3/8	1 3/4	11,500	290,900	6,900	0.79	10	15	7.43	3 7/32	1 5/8	0.234	0.114	
	6.85	S-135 EU	14,500	244,600	0.217	2.441	1.812	1.121	2.241	17,832	17,034	HT31	4	2 5/32	14,900	434,500	8,900	1.03	9	13	7.83	3 23/32	2 1/32	0.239	0.120	
	6.85	S-135 EU	14,500	244,600	0.217	2.441	1.812	1.121	2.241	17,832	17,034	XT31	4	2 3/8	13,200	309,100	7,900	0.91	10	15	7.75	3 5/8	2 1/4	0.242	0.118	
2 7/8	6.85	Z-140 IU	15,100	253,700	0.217	2.441	1.812	1.121	2.241	18,492	17,500	HT26	3 1/2	1 1/2	12,100	390,300	7,300	0.80	9	12	7.60	3 11/32	1 3/8	0.233	0.116	2 7/8
	6.65	Z-140 IU	15,100	253,700	0.217	2.441	1.812	1.121	2.241	18,492	17,500	XT26	3 3/8	1 3/4	11,500	290,900	6,900	0.76	10	15	7.43	3 1/4	1 5/8	0.234	0.114	
	6.85	Z-140 EU	15,100	253,700	0.217	2.441	1.812	1.121	2.241	18,492	17,500	HT31	4	2 5/32	14,900	434,500	8,900	0.99	9	13	7.83	3 3/4	2 1/32	0.239	0.120	
	6.85	Z-140 EU	15,100	253,700	0.217	2.441	1.812	1.121	2.241	18,492	17,500	XT31	4	2 3/8	13,200	309,100	7,900	0.87	10	15	7.75	3 21/32	2 1/4	0.242	0.118	
2 7/8	6.85	V-150 IU	16,200	271,800	0.217	2.441	1.812	1.121	2.241	19,813	18,398	HT26	3 1/2	1 1/2	12,100	390,300	7,300	0.75	9	12	7.60	3 3/8	1 3/8	0.233	0.116	2 7/8
	6.65	V-150 IU	16,200	271,800	0.217	2.441	1.812	1.121	2.241	19,813	18,398	XT26	3 3/8	1 3/4	11,500	290,900	6,900	0.71	10	15	7.43	3 9/32	1 5/8	0.234	0.114	
	6.85	V-150 EU	16,200	271,800	0.217	2.441	1.812	1.121	2.241	19,813	18,398	HT31	4	2 5/32	14,900	434,500	8,900	0.92	9	13	7.83	3 25/32	2 1/32	0.239	0.120	
	6.85	V-150 EU	16,200	271,800	0.217	2.441	1.812	1.121	2.241	19,813	18,398	XT31	4	2 3/8	13,200	309,100	7,900	0.81	10	15	7.75	3 11/16	2 1/4	0.242	0.118	
2 7/8	10.40	E-75 EU	11,600	214,300	0.362	2.151	2.858	1.602	3.204	16,526	16,509	NC31	4 1/8	2 1/8	11,900	447,100	6,400	1.03	9	11	11.14	3 13/16	2	0.188	0.170	2 7/8
	10.40	E-75 EU	11,600	214,300	0.362	2.151	2.858	1.602	3.204	16,526	16,509	NC26	3 1/2	1 1/2	8,800	390,300	4,900	0.76	9	10	10.79	3 13/32	1 3/8	0.183	0.165	

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
	10.40	E-75 EU	11,600	214,300	0.362	2.151	2.858	1.602	3.204	16,526	16,509	2-7/8 SLH90	3 7/8	2	13,100	444,000	6,900	1.13	9	11	10.95	3 19/32	1 7/8	0.187	0.168	
	10.40	E-75 IU	11,600	214,300	0.362	2.151	2.858	1.602	3.204	16,526	16,509	HT26	3 1/2	1 1/2	12,100	390,300	7,300	1.04	9	12	10.85	3 3/16	1 3/8	0.182	0.166	
	10.40	E-75 EU	11,600	214,300	0.362	2.151	2.858	1.602	3.204	16,526	16,509	HT31	4 1/8	2 1/8	16,600	447,100	10,000	1.43	9	13	11.26	3 19/32	2	0.188	0.172	
	10.40	E-75 IU	11,600	214,300	0.362	2.151	2.858	1.602	3.204	16,526	16,509	XT26	3 1/2	1 1/2	14,800	367,400	8,900	1.28	10	15	11.02	2 31/32	1 3/8	0.181	0.168	
	10.40	E-75 EU	11,600	214,300	0.362	2.151	2.858	1.602	3.204	16,526	16,509	XT31	3 7/8	2 1/8	16,600	415,100	10,000	1.43	10	15	11.06	3 3/8	2	0.188	0.169	
2 7/8	10.40	X-95 EU	14,600	271,500	0.362	2.151	2.858	1.602	3.204	20,933	20,911	NC31	4 1/8	2	13,200	495,700	7,100	0.90	9	11	11.27	3 29/32	1 7/8	0.187	0.172	2 7/8
	10.40	X-95 IU	14,600	271,500	0.362	2.151	2.858	1.602	3.204	20,933	20,911	NC26	3 1/2	1 1/2	8,800	390,300	4,900	0.60	9	10	10.76	NA	1 3/8	0.183	0.165	
	10.40	X-95 EU	14,600	271,500	0.362	2.151	2.858	1.602	3.204	20,933	20,911	2-7/8 SLH90	3 7/8	2	13,100	444,000	6,900	0.90	9	11	10.95	3 11/16	1 7/8	0.187	0.168	
	10.40	X-95 IU	14,600	271,500	0.362	2.151	2.858	1.602	3.204	20,933	20,911	HT26	3 1/2	1 1/2	12,100	390,300	7,300	0.83	9	12	10.85	3 5/16	1 3/8	0.182	0.166	
	10.40	X-95 EU	14,600	271,500	0.362	2.151	2.858	1.602	3.204	20,933	20,911	HT31	4 1/8	2 1/8	16,600	447,100	10,000	1.14	9	13	11.26	3 23/32	2	0.188	0.172	
	10.40	X-95 IU	14,600	271,500	0.362	2.151	2.858	1.602	3.204	20,933	20,911	XT26	3 1/2	1 1/2	14,800	367,400	8,900	1.01	10	15	11.02	3 3/32	1 3/8	0.181	0.168	
	10.40	X-95 EU	14,600	271,500	0.362	2.151	2.858	1.602	3.204	20,933	20,911	XT31	3 7/8	2 1/8	16,600	415,100	10,000	1.14	10	15	11.06	3 1/2	2	0.188	0.169	
2 7/8	10.40	G-105 EU	16,200	300,100	0.362	2.151	2.858	1.602	3.204	23,137	23,112	NC31	4 1/8	2	13,200	495,700	7,100	0.81	9	11	11.27	3 15/16	1 7/8	0.187	0.172	2 7/8
	10.40	G-105 IU	16,200	300,100	0.362	2.151	2.858	1.602	3.204	23,137	23,112	NC26	3 1/2	1 1/2	8,800	390,300	4,900	0.54	9	10	10.76	NA	1 3/8	0.183	0.165	
	10.40	G-105 EU	16,200	300,100	0.362	2.151	2.858	1.602	3.204	23,137	23,112	2-7/8 SLH90	3 7/8	2	13,100	444,000	6,900	0.81	9	11	10.95	3 23/32	1 7/8	0.187	0.168	
	10.40	G-105 IU	16,200	300,100	0.362	2.151	2.858	1.602	3.204	23,137	23,112	HT26	3 5/8	1 1/2	13,100	390,300	7,900	0.81	9	12	10.99	3 3/8	1 3/8	0.182	0.168	
	10.40	G-105 EU	16,200	300,100	0.362	2.151	2.858	1.602	3.204	23,137	23,112	HT31	4 1/8	2 1/8	16,600	447,100	10,000	1.02	9	13	11.26	3 3/4	2	0.188	0.172	
	10.40	G-105 IU	16,200	300,100	0.362	2.151	2.858	1.602	3.204	23,137	23,112	XT26	3 1/2	1 1/2	14,800	367,400	8,900	0.91	10	15	11.02	3 5/32	1 3/8	0.181	0.168	
	10.40	G-105 EU	16,200	300,100	0.362	2.151	2.858	1.602	3.204	23,137	23,112	XT31	3 7/8	2 1/8	16,600	415,100	10,000	1.02	10	15	11.06	3 17/32	2	0.188	0.169	
2 7/8	10.40	S-135 EU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	NC31	4 1/8	2	13,200	495,700	7,100	0.63	9	11	11.29	4 1/16	1 7/8	0.187	0.173	2 7/8
	10.40	S-135 IU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	NC26	3 5/8	1 1/2	9,000	390,300	4,900	0.43	9	10	10.90	NA	1 3/8	0.183	0.167	
	10.40	S-135 EU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	2-7/8 SLH90	3 7/8	2	13,100	444,000	6,900	0.63	9	11	10.95	3 27/32	1 7/8	0.187	0.168	
	10.40	S-135 IU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	HT26	3 5/8	1 1/2	13,100	390,300	7,900	0.63	9	12	10.99	3 9/16	1 3/8	0.182	0.168	
	10.40	S-135 EU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	HT31	4 1/8	2	18,900	495,700	11,300	0.91	9	13	11.39	3 27/32	1 7/8	0.187	0.174	
	10.40	S-135 IU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	XT26	3 1/2	1 3/8	15,900	401,300	9,500	0.76	10	15	11.11	3 5/16	1 1/4	0.180	0.170	
	10.40	S-135 EU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	XT31	3 7/8	2 1/8	16,600	415,100	10,000	0.80	10	15	11.06	3 11/16	2	0.188	0.169	
	10.40	S-135 EU	20,800	385,800	0.362	2.151	2.858	1.602	3.204	29,747	29,716	GPDS31	4 1/8	2	17,200	495,700	10,300	0.83	9	11	11.27	3 15/16	1 7/8	0.187	0.172	
2 7/8	10.40	Z-140 IU	21,600	400,100	0.362	2.151	2.858	1.602	3.204	30,849	30,817	HT26	3 5/8	1 1/4	15,300	455,100	9,200	0.71	9	12	11.15	3 17/32	1 1/8	0.180	0.171	2 7/8
	10.40	Z-140 EU	21,600	400,100	0.362	2.151	2.858	1.602	3.204	30,849	30,817	HT31	4 1/8	2	18,900	495,700	11,300	0.88	9	13	11.39	3 7/8	1 7/8	0.187	0.174	
	10.40	Z-140 IU	21,600	400,100	0.362	2.151	2.858	1.602	3.204	30,849	30,817	XT26	3 1/2	1 1/4	16,400	432,200	9,800	0.76	10	15	11.19	3 5/16	1 1/8	0.179	0.171	
	10.40	Z-140 EU	21,600	400,100	0.362	2.151	2.858	1.602	3.204	30,849	30,817	XT31	4	2	20,400	463,700	12,200	0.94	10	15	11.38	3 21/32	1 7/8	0.187	0.174	
	10.40	Z-140 EU	21,600	400,100	0.362	2.151	2.858	1.602	3.204	30,849	30,817	GPDS31	4 1/8	2	17,200	495,700	10,300	0.80	9	11	11.27	3 15/16	1 7/8	0.187	0.172	
2 7/8	10.40	V-150 IU	23,100	428,700	0.362	2.151	2.858	1.602	3.204	33,052	33,018	HT26	3 5/8	1 1/4	15,300	455,100	9,200	0.66	9	12	11.15	3 9/16	1 1/8	0.180	0.171	2 7/8
	10.40	V-150 EU	23,100	428,700	0.362	2.151	2.858	1.602	3.204	33,052	33,018	HT31	4 1/8	2	18,900	495,700	11,300	0.82	9	13	11.39	3 29/32	1 7/8	0.187	0.174	
	10.40	V-150 IU	23,100	428,700	0.362	2.151	2.858	1.602	3.204	33,052	33,018	XT26	3 1/2	1 1/4	16,400	432,200	9,800	0.71	10	15	11.19	3 3/8	1 1/8	0.179	0.171	
	10.40	V-150 EU	23,100	428,700	0.362	2.151	2.858	1.602	3.204	33,052	33,018	XT31	4	2	20,400	463,700	12,200	0.88	10	15	11.38	3 23/32	1 7/8	0.187	0.174	
	10.40	V-150 EU	23,100	428,700	0.362	2.151	2.858	1.602	3.204	33,052	33,018	GPDS31	4 1/8	2	17,200	495,700	10,300	0.74	9	11	11.27	4	1 7/8	0.187	0.172	
3 1/2	9.50	E-75 EU	14,100	194,300	0.254	2.992	2.590	1.961	3.923	9,525	10,001	NC38	4 3/4	2 11/16	18,100	587,300	9,700	1.28	10	12.5	11.07	4 13/32	2 9/16	0.360	0.169	3 1/2
	9.50	E-75 IU	14,100	194,300	0.254	2.992	2.590	1.961	3.923	9,525	10,001	NC31	4 1/8	2 1/8	11,900	447,100	6,400	0.84	9	11	10.49	3 7/8	2	0.354	0.161	
	9.50	E-75 IU	14,100	194,300	0.254	2.992	2.590	1.961	3.923	9,525	10,001	HT31	4 1/8	2 1/8	16,600	447,100	10,000	1.18	9	13	10.62	3 11/16	2	0.353	0.162	
	9.50	E-75 EU	14,100	194,300	0.254	2.992	2.590	1.961	3.923	9,525	10,001	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.79	10	15.5	11.31	4 5/32	2 9/16	0.360	0.173	
	9.50	E-75 EU	14,100	194,300	0.254	2.992	2.590	1.961	3.923	9,525	10,001	3-1/2 SLH90	4 3/4	2 11/16	18,688	534,200	11,100	1.33	10	12.5	11.07	4 3/16	2 9/16	0.360	0.169	
	9.50	E-75 IU	14,100	194,300	0.254	2.992	2.590	1.961	3.923	9,525	10,001	XT31	4	2 1/8	18,600	415,100	11,200	1.32	10	15	10.61	3 1/2	2	0.352	0.162	
	9.50	E-75 EU	14,100	194,300	0.254	2.992	2.590	1.961	3.923	9,525	10,001	XT38	4 3/4	2 13/16	23,900	473,000	14,300	1.70	10	15	11.08	4	2 11/16	0.362	0.170	
3 1/2	9.50	X-95 EU	17,900	246,100	0.254	2.992	2.590	1.961	3.923	12,065	12,077	NC38	4 3/4	2 11/16	18,100	587,300	9,700	1.01	10	12.5	11.07	4 15/32	2 9/16	0.360	0.169	3 1/2
	9.50	X-95 IU	17,900	246,100	0.254	2.992	2.590	1.961	3.923	12,065	12,077	NC31	4 1/8	2	13,200	495,700	7,100	0.74	9	11	10.61	4	1 7/8	0.352	0.162	
	9.50	X-95 IU	17,900	246,100	0.254	2.992	2.590	1.961	3.923	12,065	12,077	HT31	4 1/8	2 1/8	16,600	447,100	10,000	0.93	9	13	10.62	3 13/16	2	0.353	0.162	
	9.50	X-95 EU	17,900	246,100	0.254	2.992	2.590	1.961	3.923	12,065	12,077	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.41	10	15.5	11.31	4 1/4	2 9/16	0.360	0.173	
	9.50	X-95 EU	17,900	246,100	0.254	2.992	2.590	1.961	3.923	12,065	12,077	3-1/2 SLH90	4 3/4	2 11/16	18,700	534,200	11,100	1.04	10	12.5	11.07	4 9/32	2 9/16	0.360	0.169	
	9.50	X-95 IU	17,900	246,100	0.254	2.992	2.590	1.961	3.923	12,065	12,077	XT31	4	2 1/8	18,600	415,100	11,200	1.04	10	15	10.61	3 5/8	2	0.352	0.162	
	9.50	X-95 EU	17,900	246,100	0.254	2.992	2.590	1.961	3.923	12,065	12,077	XT38	4 3/4	2 13/16	23,900	473,000	14,300	1.34	10	15	11.08	4 3/32	2 11/16	0.362	0.170	
3 1/2	9.50	G-105 EU	19,800	272,000	0.254	2.992	2.590	1.961	3.923	13,335	13,055	NC38	4 3/4	2 11/16	18,100	587,300	9,700	0.91	10	12.5	11.07	4 17/32	2 9/16	0.360	0.169	3 1/2
	9.50	G-105 IU	19,800	272,000	0.254	2.992	2.590	1.961	3.923	13,335	13,055	NC31	4 1/8	2	13,200	495,700	7,100	0.67	9	11	10.61	4 1/16	1 7/8	0.352	0.162	
	9.50	G-105 IU	19,800	272,000	0.254	2.992	2.590	1.961	3.923	13,335	13,055	HT31	4 1/8	2	18,900	495,700	11,300	0.95	9	13	10.74	3 27/32	1 7/8	0.351	0.164	
	9.50	G-105 EU	19,800	272,000	0.254	2.992	2.590	1.961	3.923	13,335	13,055	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.28	10	15.5	11.31	4 9/32	2 9/16	0.360	0.173	

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
	9.50	G-105 EU	19,800	272,000	0.254	2.992	2.590	1.961	3.923	13,335	13,055	3-1/2 SLH90	4 3/4	2 11/16	18,700	534,200	11,100	0.94	10	12.5	11.07	4 5/16	2 9/16	0.360	0.169	
	9.50	G-105 IU	19,800	272,000	0.254	2.992	2.590	1.961	3.923	13,335	13,055	XT31	4	2 1/8	18,600	415,100	11,200	0.94	10	15	10.61	3 11/16	2	0.352	0.162	
	9.50	G-105 EU	19,800	272,000	0.254	2.992	2.590	1.961	3.923	13,335	13,055	XT38	4 3/4	2 13/16	23,900	473,000	14,300	1.21	10	15	11.08	4 5/32	2 11/16	0.362	0.170	
3 1/2	9.50	S-135 EU	25,500	349,700	0.254	2.992	2.590	1.961	3.923	17,145	15,748	NC38	4 7/8	2 9/16	20,200	649,200	10,700	0.79	10	12.5	11.45	4 21/32	2 7/16	0.358	0.175	3 1/2
	9.50	S-135 IU	25,500	349,700	0.254	2.992	2.590	1.961	3.923	17,145	15,748	NC31	4 1/8	2	13,200	495,700	7,100	0.52	9	11	10.61	NA	1 7/8	0.352	0.162	
	9.50	S-135 IU	25,500	349,700	0.254	2.992	2.590	1.961	3.923	17,145	15,748	HT31	4 1/8	2	18,900	495,700	11,300	0.74	9	13	10.74	4	1 7/8	0.351	0.164	
	9.50	S-135 EU	25,500	349,700	0.254	2.992	2.590	1.961	3.923	17,145	15,748	HT38	4 3/4	2 11/16	25,300	587,300	15,200	0.99	10	15.5	11.31	4 7/16	2 9/16	0.360	0.173	
	9.50	S-135 EU	25,500	349,700	0.254	2.992	2.590	1.961	3.923	17,145	15,748	3-1/2 SLH90	4 3/4	2 9/16	20,900	596,100	12,400	0.82	10	12.5	11.24	4 7/16	2 7/16	0.358	0.172	
	9.50	S-135 IU	25,500	349,700	0.254	2.992	2.590	1.961	3.923	17,145	15,748	XT31	4	2	20,400	463,700	12,200	0.80	10	15	10.74	3 13/16	1 7/8	0.350	0.164	
	9.50	S-135 EU	25,500	349,700	0.254	2.992	2.590	1.961	3.923	17,145	15,748	XT38	4 3/4	2 13/16	23,900	473,000	14,300	0.94	10	15	11.08	4 9/32	2 11/16	0.362	0.170	
3 1/2	9.50	Z-140 IU	26,400	362,600	0.254	2.992	2.590	1.961	3.923	17,780	16,158	HT31	4 1/8	2	18,900	495,700	11,300	0.72	9	13	10.74	4 1/32	1 7/8	0.351	0.164	3 1/2
	9.50	Z-140 EU	26,400	362,600	0.254	2.992	2.590	1.961	3.923	17,780	16,158	HT38	4 3/4	2 11/16	25,300	587,300	15,200	0.96	10	15.5	11.31	4 15/32	2 9/16	0.360	0.173	
	9.50	Z-140 IU	26,400	362,600	0.254	2.992	2.590	1.961	3.923	17,780	16,158	XT31	4	2	20,400	463,700	12,200	0.77	10	15	10.74	3 27/32	1 7/8	0.350	0.164	
	9.50	Z-140 EU	26,400	362,600	0.254	2.992	2.590	1.961	3.923	17,780	16,158	XT38	4 3/4	2 13/16	23,900	473,000	14,300	0.91	10	15	11.08	4 5/16	2 11/16	0.362	0.170	
3 1/2	9.50	V-150 IU	28,300	388,500	0.254	2.992	2.590	1.961	3.923	19,050	16,943	HT31	4 1/4	1 3/4	23,400	584,100	14,000	0.83	9	13	11.14	4	1 5/8	0.348	0.170	3 1/2
	9.50	V-150 EU	28,300	388,500	0.254	2.992	2.590	1.961	3.923	19,050	16,943	HT38	4 3/4	2 11/16	25,300	587,300	15,200	0.89	10	15.5	11.31	4 1/2	2 9/16	0.360	0.173	
	9.50	V-150 IU	28,300	388,500	0.254	2.992	2.590	1.961	3.923	19,050	16,943	XT31	4	2	20,400	463,700	12,200	0.72	10	15	10.74	3 29/32	1 7/8	0.350	0.164	
	9.50	V-150 EU	28,300	388,500	0.254	2.992	2.590	1.961	3.923	19,050	16,943	XT38	4 3/4	2 13/16	23,900	473,000	14,300	0.84	10	15	11.08	4 11/32	2 11/16	0.362	0.170	
3 1/2	13.30	E-75 EU	18,600	271,600	0.368	2.764	3.621	2.572	5.144	13,800	14,113	NC38	4 3/4	2 11/16	18,100	587,300	9,700	0.97	10	12.5	14.24	4 1/2	2 9/16	0.310	0.218	3 1/2
	13.30	E-75 IU	18,600	271,600	0.368	2.764	3.621	2.572	5.144	13,800	14,113	NC31	4 1/8	2	13,200	495,700	7,100	0.71	9	11	13.93	4 1/32	1 7/8	0.302	0.213	
	13.30	E-75 IU	18,600	271,600	0.368	2.764	3.621	2.572	5.144	13,800	14,113	HT31	4 1/8	2 1/8	16,600	447,100	10,000	0.89	9	13	13.91	3 27/32	2	0.303	0.213	
	13.30	E-75 EU	18,600	271,600	0.368	2.764	3.621	2.572	5.144	13,800	14,113	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.36	10	15.5	14.45	4 1/4	2 9/16	0.310	0.221	
	13.30	E-75 EU	18,600	271,600	0.368	2.764	3.621	2.572	5.144	13,800	14,113	3-1/2 SLH90	4 3/4	2 11/16	18,700	534,200	11,100	1.01	10	12.5	14.24	4 9/32	2 9/16	0.310	0.218	
	13.30	E-75 IU	18,600	271,600	0.368	2.764	3.621	2.572	5.144	13,800	14,113	XT31	4	2 1/8	18,600	415,100	11,200	1.00	10	15	13.87	3 5/8	2	0.302	0.212	
	13.30	E-75 EU	18,600	271,600	0.368	2.764	3.621	2.572	5.144	13,800	14,113	XT38	4 3/4	2 11/16	27,700	537,800	16,600	1.49	10	15	14.42	4 1/32	2 9/16	0.310	0.221	
3 1/2	13.30	X-95 EU	23,500	344,000	0.368	2.764	3.621	2.572	5.144	17,480	17,877	NC38	5	2 9/16	20,300	649,200	10,700	0.86	10	12.5	14.84	4 19/32	2 7/16	0.308	0.227	3 1/2
	13.30	X-95 IU	23,500	344,000	0.368	2.764	3.621	2.572	5.144	17,480	17,877	NC31	4 1/8	2	13,200	495,700	7,100	0.56	9	11	13.93	NA	1 7/8	0.302	0.213	
	13.30	X-95 IU	23,500	344,000	0.368	2.764	3.621	2.572	5.144	17,480	17,877	HT31	4 1/8	2	18,900	495,700	11,300	0.80	9	13	14.04	3 15/16	1 7/8	0.301	0.215	
	13.30	X-95 EU	23,500	344,000	0.368	2.764	3.621	2.572	5.144	17,480	17,877	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.08	10	15.5	14.45	4 3/8	2 9/16	0.310	0.221	
	13.30	X-95 EU	23,500	344,000	0.368	2.764	3.621	2.572	5.144	17,480	17,877	3-1/2 SLH90	4 3/4	2 11/16	18,700	534,200	11,100	0.80	10	12.5	14.24	4 3/8	2 9/16	0.310	0.218	
	13.30	X-95 IU	23,500	344,000	0.368	2.764	3.621	2.572	5.144	17,480	17,877	XT31	4	2 1/8	18,600	415,100	11,200	0.79	10	15	13.87	3 25/32	2	0.302	0.212	
	13.30	X-95 EU	23,500	344,000	0.368	2.764	3.621	2.572	5.144	17,480	17,877	XT38	4 3/4	2 11/16	27,700	537,800	16,600	1.18	10	15	14.42	4 5/32	2 9/16	0.310	0.221	
3 1/2	13.30	G-105 EU	26,000	380,200	0.368	2.764	3.621	2.572	5.144	19,320	19,758	NC38	5	2 7/16	22,200	708,100	11,700	0.85	10	12.5	15.00	4 21/32	2 5/16	0.306	0.229	3 1/2
	13.30	G-105 IU	26,000	380,200	0.368	2.764	3.621	2.572	5.144	19,320	19,758	NC31	4 1/8	2	13,200	495,700	7,100	0.51	9	11	13.93	NA	1 7/8	0.302	0.213	
	13.30	G-105 IU	26,000	380,200	0.368	2.764	3.621	2.572	5.144	19,320	19,758	HT31	4 1/8	2	18,900	495,700	11,300	0.73	9	13	14.04	4	1 7/8	0.301	0.215	
	13.30	G-105 EU	26,000	380,200	0.368	2.764	3.621	2.572	5.144	19,320	19,758	HT38	4 3/4	2 11/16	25,300	587,300	15,200	0.97	10	15.5	14.45	4 7/16	2 9/16	0.310	0.221	
	13.30	G-105 EU	26,000	380,200	0.368	2.764	3.621	2.572	5.144	19,320	19,758	3-1/2 SLH90	4 3/4	2 9/16	20,900	596,100	12,400	0.80	10	12.5	14.41	4 7/16	2 7/16	0.308	0.220	
	13.30	G-105 IU	26,000	380,200	0.368	2.764	3.621	2.572	5.144	19,320	19,758	XT31	4 1/8	2	21,100	463,700	12,700	0.81	10	15	14.21	3 13/16	1 7/8	0.300	0.217	
	13.30	G-105 EU	26,000	380,200	0.368	2.764	3.621	2.572	5.144	19,320	19,758	XT38	4 3/4	2 11/16	27,700	537,800	16,600	1.07	10	15	14.42	4 7/32	2 9/16	0.310	0.221	
3 1/2	13.30	S-135 EU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	NC38	5	2 1/8	26,500	842,400	14,000	0.79	10	12.5	15.37	4 13/16	2	0.302	0.235	3 1/2
	13.30	S-135 IU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	NC31	4 1/8	2	13,200	495,700	7,100	0.40	9	11	13.93	NA	1 7/8	0.302	0.213	
	13.30	S-135 IU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	HT31	4 1/8	2	18,900	495,700	11,300	0.57	9	13	14.04	NA	1 7/8	0.301	0.215	
	13.30	S-135 EU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	HT38	4 3/4	2 9/16	26,900	649,200	16,100	0.81	10	15.5	14.63	4 9/16	2 7/16	0.308	0.224	
	13.30	S-135 EU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	3-1/2 SLH90	4 3/4	2 9/16	20,900	596,100	12,400	0.63	10	12.5	14.41	4 19/32	2 7/16	0.308	0.220	
	13.30	S-135 IU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	XT31	4 1/8	1 7/8	23,400	509,400	14,000	0.70	10	15	14.34	3 31/32	1 3/4	0.298	0.219	
	13.30	S-135 EU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	XT38	4 3/4	2 11/16	27,700	537,800	16,600	0.83	10	15	14.42	4 13/32	2 9/16	0.310	0.221	
	13.30	S-135 EU	33,400	488,800	0.368	2.764	3.621	2.572	5.144	24,840	25,404	GPDS38	4 7/8	2 9/16	25,700	649,200	15,400	0.77	10	12.5	14.62	4 11/16	2 7/16	0.308	0.224	
3 1/2	13.30	Z-140 IU	34,600	506,900	0.368	2.764	3.621	2.572	5.144	25,760	26,345	HT31	4 1/8	1 7/8	19,900	541,400	11,900	0.58	9	13	14.17	NA	1 3/4	0.300	0.217	3 1/2
	13.30	Z-140 EU	34,600	506,900	0.368	2.764	3.621	2.572	5.144	25,760	26,345	HT38	4 3/4	2 9/16	26,900	649,200	16,100	0.78	10	15.5	14.63	4 9/16	2 7/16	0.308	0.224	
	13.30	Z-140 IU	34,600	506,900	0.368	2.764	3.621	2.572	5.144	25,760	26,345	XT31	4 1/8	1 3/4	25,000	552,100	15,000	0.72	10	15	14.47	3 31/32	1 5/8	0.297	0.221	
	13.30	Z-140 EU	34,600	506,900	0.368	2.764	3.621	2.572	5.144	25,760	26,345	XT38	4 3/4	2 9/16	31,300	599,600	18,800	0.90	10	15	14.59	4 3/8	2 7/16	0.308	0.223	
	13.30	Z-140 EU	34,600	506,900	0.368	2.764	3.621	2.572	5.144	25,760	26,345	GPDS38	5	2 9/16	25,800	649,200	15,500	0.75	10	12.5	14.84	4 11/16	2 7/16	0.308	0.227	
3 1/2	13.30	V-150 IU	37,100	543,100	0.368	2.764	3.621	2.572	5.144	27,600	28,226	HT31	4 1/4	1 3/4	23,400	584,100	14,000	0.63	9	13	14.47	4 1/4	1 5/8	0.298	0.221	3 1/2
	13.30	V-150 EU	37,100	543,100	0.368	2.764	3.621	2.572	5.144	27,600	28,226	HT38	4 3/4	2 9/16	26,900	649,200	16,100	0.73	10	15.5	14.63	4 5/8	2 7/16	0.308	0.224	
	13.30	V-150 IU	37,100	543,100	0.368	2.764	3.621	2.572	5.144	27,600	28,226	XT31	4 1/8	1 3/4	25,000	552,100	15,000	0.67	10	15	14.47	4 1/16	1 5/8	0.297	0.221	

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
	13.30	V-150 EU	37,100	543,100	0.368	2.764	3.621	2.572	5.144	27,600	28,226	XT38	4 3/4	2 9/16	31,300	599,600	18,800	0.84	10	15	14.59	4 7/16	2 7/16	0.308	0.223	
	13.30	V-150 EU	37,100	543,100	0.368	2.764	3.621	2.572	5.144	27,600	28,226	GPDS38	5	2 9/16	25,800	649,200	15,500	0.70	10	12.5	14.84	4 3/4	2 7/16	0.308	0.227	
3 1/2	15.50	E-75 EU	21,100	322,800	0.449	2.602	4.304	2.923	5.847	16,838	16,774	NC38	5	2 9/16	20,300	649,200	10,700	0.96	10	12.5	16.94	4 17/32	2 7/16	0.276	0.259	3 1/2
	15.50	E-75 EU	21,100	322,800	0.449	2.602	4.304	2.923	5.847	16,838	16,774	HT38	4 3/4	2 9/16	26,900	649,200	16,100	1.27	10	15.5	16.71	4 1/4	2 7/16	0.276	0.256	
	15.50	E-75 EU	21,100	322,800	0.449	2.602	4.304	2.923	5.847	16,838	16,774	XT38	4 3/4	2 9/16	31,300	599,600	18,800	1.48	10	15	16.68	4 1/32	2 7/16	0.276	0.255	
3 1/2	15.50	X-95 EU	26,700	408,800	0.449	2.602	4.304	2.923	5.847	21,328	21,247	NC38	5	2 7/16	22,200	708,100	11,700	0.83	10	12.5	17.11	4 21/32	2 5/16	0.274	0.262	3 1/2
	15.50	X-95 EU	26,700	408,800	0.449	2.602	4.304	2.923	5.847	21,328	21,247	HT38	4 3/4	2 9/16	26,900	649,200	16,100	1.01	10	15.5	16.71	4 3/8	2 7/16	0.276	0.256	
	15.50	X-95 EU	26,700	408,800	0.449	2.602	4.304	2.923	5.847	21,328	21,247	XT38	4 3/4	2 9/16	31,300	599,600	18,800	1.17	10	15	16.68	4 5/32	2 7/16	0.276	0.255	
3 1/2	15.50	G-105 EU	29,500	451,900	0.449	2.602	4.304	2.923	5.847	23,573	23,484	NC38	5	2 1/8	26,500	842,400	14,000	0.90	10	12.5	17.50	4 23/32	2	0.269	0.268	3 1/2
	15.50	G-105 EU	29,500	451,900	0.449	2.602	4.304	2.923	5.847	23,573	23,484	HT38	4 3/4	2 9/16	26,900	649,200	16,100	0.91	10	15.5	16.71	4 7/16	2 7/16	0.276	0.256	
	15.50	G-105 EU	29,500	451,900	0.449	2.602	4.304	2.923	5.847	23,573	23,484	NC40	5 1/4	2 9/16	27,800	838,300	14,600	0.94	9	12	17.24	4 15/16	2 7/16	0.276	0.264	
	15.50	G-105 EU	29,500	451,900	0.449	2.602	4.304	2.923	5.847	23,573	23,484	XT38	4 3/4	2 9/16	31,300	599,600	18,800	1.06	10	15	16.68	4 1/4	2 7/16	0.276	0.255	
3 1/2	15.50	S-135 EU	38,000	581,000	0.449	2.602	4.304	2.923	5.847	30,308	30,194	NC38	5	2 1/8	26,500	842,400	14,000	0.70	10	12.5	17.50	4 29/32	2	0.269	0.268	3 1/2
	15.50	S-135 EU	38,000	581,000	0.449	2.602	4.304	2.923	5.847	30,308	30,194	HT38	4 3/4	2 7/16	28,400	708,100	17,000	0.75	10	15.5	16.90	4 19/32	2 5/16	0.273	0.258	
	15.50	S-135 EU	38,000	581,000	0.449	2.602	4.304	2.923	5.847	30,308	30,194	NC40	5 1/2	2 1/4	32,900	980,000	17,100	0.87	10	12.5	18.31	5 3/32	2 1/8	0.271	0.280	
	15.50	S-135 EU	38,000	581,000	0.449	2.602	4.304	2.923	5.847	30,308	30,194	XT38	4 3/4	2 7/16	34,200	658,500	20,500	0.90	10	15	16.86	4 3/8	2 5/16	0.273	0.258	
	15.50	S-135 EU	38,000	581,000	0.449	2.602	4.304	2.923	5.847	30,308	30,194	XT39	4 7/8	2 7/16	38,500	788,600	23,100	1.01	10	15	17.09	4 3/8	2 5/16	0.273	0.261	
	15.50	S-135 EU	38,000	581,000	0.449	2.602	4.304	2.923	5.847	30,308	30,194	GPDS38	5	2 7/16	29,200	708,100	17,500	0.77	10	12.5	17.11	4 23/32	2 5/16	0.274	0.262	
3 1/2	15.50	Z-140 EU	39,400	602,500	0.449	2.602	4.304	2.923	5.847	31,430	31,312	HT38	4 3/4	2 7/16	28,400	708,100	17,000	0.72	10	15.5	16.90	4 5/8	2 5/16	0.273	0.258	3 1/2
	15.50	Z-140 EU	39,400	602,500	0.449	2.602	4.304	2.923	5.847	31,430	31,312	XT38	4 3/4	2 7/16	34,200	658,500	20,500	0.87	10	15	16.86	4 13/32	2 5/16	0.273	0.258	
	15.50	Z-140 EU	39,400	602,500	0.449	2.602	4.304	2.923	5.847	31,430	31,312	XT39	4 7/8	2 7/16	38,500	788,600	23,100	0.98	10	15	17.09	4 13/32	2 5/16	0.273	0.261	
	15.50	Z-140 EU	39,400	602,500	0.449	2.602	4.304	2.923	5.847	31,430	31,312	GPDS38	5	2 7/16	29,200	708,100	17,500	0.74	10	12.5	17.11	4 3/4	2 5/16	0.274	0.262	
3 1/2	15.50	V-150 EU	42,200	645,500	0.449	2.602	4.304	2.923	5.847	33,675	33,549	HT38	5	2 1/4	37,700	790,900	22,600	0.89	10	15.5	17.63	4 19/32	2 1/8	0.270	0.270	3 1/2
	15.50	V-150 EU	42,200	645,500	0.449	2.602	4.304	2.923	5.847	33,675	33,549	XT38	4 3/4	2 1/4	36,300	741,400	21,800	0.86	10	15	17.11	4 13/32	2 1/8	0.271	0.262	
	15.50	V-150 EU	42,200	645,500	0.449	2.602	4.304	2.923	5.847	33,675	33,549	XT39	4 7/8	2 1/4	40,700	871,400	24,400	0.96	10	15	17.35	4 3/8	2 1/8	0.270	0.265	
	15.50	V-150 EU	42,200	645,500	0.449	2.602	4.304	2.923	5.847	33,675	33,549	GPDS38	5	2 1/4	33,900	790,900	20,300	0.80	10	12.5	17.35	4 23/32	2 1/8	0.271	0.265	
4	11.85	E-75 IU	19,500	230,800	0.262	3.476	3.077	2.700	5.400	8,597	8,381	NC40	5 1/4	2 13/16	23,500	711,600	12,400	1.21	9	12	13.41	4 3/4	2 11/16	0.481	0.205	4
	11.85	E-75 IU	19,500	230,800	0.262	3.476	3.077	2.700	5.400	8,597	8,381	4 SH	4 3/4	2 9/16	15,300	512,000	8,100	0.78	9	12	12.91	4 3/8	2 7/16	0.477	0.198	
	11.85	E-75 IU	19,500	230,800	0.262	3.476	3.077	2.700	5.400	8,597	8,381	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.30	10	15.5	13.08	4 9/32	2 9/16	0.477	0.200	
	11.85	E-75 IU	19,500	230,800	0.262	3.476	3.077	2.700	5.400	8,597	8,381	XT38	4 3/4	2 11/16	27,700	537,800	16,600	1.42	10	15	13.04	4 1/16	2 9/16	0.477	0.199	
	11.85	E-75 IU	19,500	230,800	0.262	3.476	3.077	2.700	5.400	8,597	8,381	XT39	4 7/8	2 13/16	32,900	603,000	19,700	1.69	10	15	13.08	4 5/32	2 11/16	0.479	0.200	
4	11.85	X-95 IU	24,700	292,300	0.262	3.476	3.077	2.700	5.400	10,889	9,978	NC40	5 1/4	2 13/16	23,500	711,600	12,400	0.95	9	12	13.41	4 27/32	2 11/16	0.481	0.205	4
	11.85	X-95 IU	24,700	292,300	0.262	3.476	3.077	2.700	5.400	10,889	9,978	4 SH	4 3/4	2 9/16	15,300	512,000	8,100	0.62	9	12	12.91	4 1/2	2 7/16	0.477	0.198	
	11.85	X-95 IU	24,700	292,300	0.262	3.476	3.077	2.700	5.400	10,889	9,978	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.02	10	15.5	13.08	4 13/32	2 9/16	0.477	0.200	
	11.85	X-95 IU	24,700	292,300	0.262	3.476	3.077	2.700	5.400	10,889	9,978	XT38	4 3/4	2 11/16	27,700	537,800	16,600	1.12	10	15	13.04	4 3/16	2 9/16	0.477	0.199	
	11.85	X-95 IU	24,700	292,300	0.262	3.476	3.077	2.700	5.400	10,889	9,978	XT39	4 7/8	2 13/16	32,900	603,000	19,700	1.33	10	15	13.08	4 9/32	2 11/16	0.479	0.200	
4	11.85	G-105 IU	27,300	323,100	0.262	3.476	3.077	2.700	5.400	12,036	10,708	NC40	5 1/4	2 13/16	23,500	711,600	12,400	0.86	9	12	13.41	4 29/32	2 11/16	0.481	0.205	4
	11.85	G-105 IU	27,300	323,100	0.262	3.476	3.077	2.700	5.400	12,036	10,708	4 SH	4 3/4	2 9/16	15,300	512,000	8,100	0.56	9	12	12.91	4 9/16	2 7/16	0.477	0.198	
	11.85	G-105 IU	27,300	323,100	0.262	3.476	3.077	2.700	5.400	12,036	10,708	HT38	4 3/4	2 9/16	26,900	649,200	16,100	0.99	10	15.5	13.27	4 13/32	2 7/16	0.475	0.203	
	11.85	G-105 IU	27,300	323,100	0.262	3.476	3.077	2.700	5.400	12,036	10,708	XT38	4 3/4	2 11/16	27,700	537,800	16,600	1.01	10	15	13.04	4 9/32	2 9/16	0.477	0.199	
	11.85	G-105 IU	27,300	323,100	0.262	3.476	3.077	2.700	5.400	12,036	10,708	XT39	4 7/8	2 13/16	32,900	603,000	19,700	1.21	10	15	13.08	4 11/32	2 11/16	0.479	0.200	
4	11.85	S-135 IU	35,100	415,400	0.262	3.476	3.077	2.700	5.400	15,474	12,618	NC40	5 1/2	2 9/16	28,100	838,300	14,600	0.80	9	12	14.23	5 1/16	2 7/16	0.476	0.218	4
	11.85	S-135 IU	35,100	415,400	0.262	3.476	3.077	2.700	5.400	15,474	12,618	4 SH	4 3/4	2 9/16	15,300	512,000	8,100	0.44	9	12	12.91	4 23/32	2 7/16	0.477	0.198	
	11.85	S-135 IU	35,100	415,400	0.262	3.476	3.077	2.700	5.400	15,474	12,618	HT38	4 3/4	2 7/16	28,400	708,100	17,000	0.81	10	15.5	13.45	4 17/32	2 5/16	0.473	0.206	
	11.85	S-135 IU	35,100	415,400	0.262	3.476	3.077	2.700	5.400	15,474	12,618	XT38	4 3/4	2 11/16	27,700	537,800	16,600	0.79	10	15	13.04	4 7/16	2 9/16	0.477	0.199	
	11.85	S-135 IU	35,100	415,400	0.262	3.476	3.077	2.700	5.400	15,474	12,618	XT39	4 7/8	2 13/16	32,900	603,000	19,700	0.94	10	15	13.08	4 1/2	2 11/16	0.479	0.200	
4	11.85	Z-140 IU	36,400	430,700	0.262	3.476	3.077	2.700	5.400	16,048	12,894	HT38	4 3/4	2 7/16	28,400	708,100	17,000	0.78	10	15.5	13.45	4 9/16	2 5/16	0.473	0.206	4
	11.85	Z-140 IU	36,400	430,700	0.262	3.476	3.077	2.700	5.400	16,048	12,894	XT38	4 3/4	2 11/16	27,700	537,800	16,600	0.76	10	15	13.04	4 15/32	2 9/16	0.477	0.199	
	11.85	Z-140 IU	36,400	430,700	0.262	3.476	3.077	2.700	5.400	16,048	12,894	XT39	4 7/8	2 13/16	32,900	603,000	19,700	0.90	10	15	13.08	4 17/32	2 11/16	0.479	0.200	
4	11.85	V-150 IU	38,900	461,500	0.262	3.476	3.077	2.700	5.400	17,194	13,404	HT38	5	2 7/16	33,000	708,100	19,800	0.85	10	15.5	13.93	4 5/8	2 5/16	0.472	0.213	4
	11.85	V-150 IU	38,900	461,500	0.262	3.476	3.077	2.700	5.400	17,194	13,404	XT38	4 3/4	2 9/16	31,300	599,600	18,800	0.80	10	15	13.23	4 15/32	2 7/16	0.475	0.202	
	11.85	V-150 IU	38,900	461,500	0.262	3.476	3.077	2.700	5.400	17,194	13,404	XT39	4 7/8	2 13/16	32,900	603,000	19,700	0.85	10	15	13.08	4 19/32	2 11/16	0.479	0.200	
4	14.00	E-75 IU	23,300	285,400	0.330	3.340	3.805	3.229	6.458	10,828	11,354	NC40	5 1/4	2 13/16	23,500	711,600	12,400	1.01	9	12	15.64	4 13/16	2 11/16	0.445	0.239	4
	14.00	E-75 IU	23,300	285,400	0.330	3.340	3.805	3.229	6.458	10,828	11,354	HT38	4 3/4	2 11/16	25,300	587,300	15,200	1.09	10	15.5	15.28	4 3/8	2 9/16	0.442	0.234	
	14.00	E-75 IU	23,300	285,400	0.330	3.340	3.805	3.229	6.458	10,828	11,354	4 SH	4 3/4	2 7/16	17,100	570,900	9,100	0.73	9	12	15.31	4 7/16	2 5/16	0.440	0.234	

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
	14.00	E-75 IU	23,300	285,400	0.330	3.340	3.805	3.229	6.458	10,828	11,354	HT40	5 1/4	2 13/16	31,900	711,600	19,100	1.37	9	15	15.93	4 19/32	2 11/16	0.444	0.244	
	14.00	E-75 EU	23,300	285,400	0.330	3.340	3.805	3.229	6.458	10,828	11,354	NC46	6	3 1/4	33,600	901,200	17,600	1.44	9	12	16.51	5 9/32	3 1/8	0.453	0.253	
	14.00	E-75 IU	23,300	285,400	0.330	3.340	3.805	3.229	6.458	10,828	11,354	XT38	4 3/4	2 11/16	27,700	537,800	16,600	1.19	10	15	15.25	4 5/32	2 9/16	0.442	0.233	
	14.00	E-75 IU	23,300	285,400	0.330	3.340	3.805	3.229	6.458	10,828	11,354	XT39	4 7/8	2 13/16	32,900	603,000	19,700	1.41	10	15	15.29	4 1/4	2 11/16	0.444	0.234	
4	14.00	X-95 IU	29,500	361,500	0.330	3.340	3.805	3.229	6.458	13,716	14,382	NC40	5 1/4	2 11/16	25,700	776,400	13,500	0.87	9	12	15.82	4 15/16	2 9/16	0.443	0.242	4
	14.00	X-95 IU	29,500	361,500	0.330	3.340	3.805	3.229	6.458	13,716	14,382	HT38	4 3/4	2 11/16	25,300	587,300	15,200	0.86	10	15.5	15.28	4 17/32	2 9/16	0.442	0.234	
	14.00	X-95 IU	29,500	361,500	0.330	3.340	3.805	3.229	6.458	13,716	14,382	4 SH	4 3/4	2 7/16	17,100	570,900	9,100	0.58	9	12	15.31	4 19/32	2 5/16	0.440	0.234	
	14.00	X-95 IU	29,500	361,500	0.330	3.340	3.805	3.229	6.458	13,716	14,382	HT40	5 1/4	2 13/16	31,900	711,600	19,100	1.08	9	15	15.93	4 23/32	2 11/16	0.444	0.244	
	14.00	X-95 EU	29,500	361,500	0.330	3.340	3.805	3.229	6.458	13,716	14,382	NC46	6	3 1/4	33,600	901,200	17,600	1.14	9	12	16.51	5 3/8	3 1/8	0.453	0.253	
	14.00	X-95 IU	29,500	361,500	0.330	3.340	3.805	3.229	6.458	13,716	14,382	XT38	4 3/4	2 11/16	27,700	537,800	16,600	0.94	10	15	15.25	4 5/16	2 9/16	0.442	0.233	
	14.00	X-95 IU	29,500	361,500	0.330	3.340	3.805	3.229	6.458	13,716	14,382	XT39	4 7/8	2 13/16	32,900	603,000	19,700	1.12	10	15	15.29	4 3/8	2 11/16	0.444	0.234	
4	14.00	G-105 IU	32,600	399,500	0.330	3.340	3.805	3.229	6.458	15,159	15,896	NC40	5 1/2	2 7/16	30,100	897,200	15,600	0.92	9	12	16.62	5	2 5/16	0.439	0.254	4
	14.00	G-105 IU	32,600	399,500	0.330	3.340	3.805	3.229	6.458	15,159	15,896	HT38	5	2 9/16	29,600	649,200	17,800	0.91	10	15.5	15.95	4 17/32	2 7/16	0.440	0.244	
	14.00	G-105 IU	32,600	399,500	0.330	3.340	3.805	3.229	6.458	15,159	15,896	4 SH	4 3/4	2 7/16	17,100	570,900	9,100	0.52	9	12	15.31	4 21/32	2 5/16	0.440	0.234	
	14.00	G-105 IU	32,600	399,500	0.330	3.340	3.805	3.229	6.458	15,159	15,896	HT40	5 1/4	2 13/16	31,900	711,600	19,100	0.98	9	15	15.93	4 25/32	2 11/16	0.444	0.244	
	14.00	G-105 EU	32,600	399,500	0.330	3.340	3.805	3.229	6.458	15,159	15,896	NC46	6	3 1/4	33,600	901,200	17,600	1.03	9	12	16.51	5 7/16	3 1/8	0.453	0.253	
	14.00	G-105 IU	32,600	399,500	0.330	3.340	3.805	3.229	6.458	15,159	15,896	XT38	4 3/4	2 11/16	27,700	537,800	16,600	0.85	10	15	15.25	4 3/8	2 9/16	0.442	0.233	
	14.00	G-105 IU	32,600	399,500	0.330	3.340	3.805	3.229	6.458	15,159	15,896	XT39	4 7/8	2 13/16	32,900	603,000	19,700	1.01	10	15	15.29	4 7/16	2 11/16	0.444	0.234	
4	14.00	S-135 IU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	NC40	5 1/2	2	36,400	1,080,100	18,900	0.87	9	12	17.15	5 3/16	1 7/8	0.433	0.262	4
	14.00	S-135 IU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	HT38	5	2 7/16	33,000	708,100	19,800	0.79	10	15.5	16.13	4 11/16	2 5/16	0.438	0.247	
	14.00	S-135 IU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	4 SH	4 3/4	2 7/16	17,100	570,900	9,100	0.41	9	12	15.31	NA	2 5/16	0.440	0.234	
	14.00	S-135 IU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	HT40	5 1/4	2 11/16	35,900	776,400	21,500	0.86	9	15	16.12	4 29/32	2 9/16	0.442	0.247	
	14.00	S-135 EU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	NC46	6	3	39,200	1,048,400	20,500	0.94	9	12	16.90	5 9/16	2 7/8	0.449	0.259	
	14.00	S-135 IU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	XT38	4 3/4	2 9/16	31,300	599,600	18,800	0.75	10	15	15.44	4 17/32	2 7/16	0.440	0.236	
	14.00	S-135 IU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	XT39	4 7/8	2 9/16	37,000	729,700	22,200	0.88	10	15	15.67	4 17/32	2 7/16	0.440	0.240	
	14.00	S-135 IU	41,900	513,600	0.330	3.340	3.805	3.229	6.458	19,491	20,141	GPDS40	5 1/4	2 11/16	32,700	776,400	19,600	0.78	9	12	15.82	5	2 9/16	0.443	0.242	
4	14.00	Z-140 IU	43,500	532,700	0.330	3.340	3.805	3.229	6.458	20,213	20,742	HT38	5	2 7/16	33,000	708,100	19,800	0.76	10	15.5	16.13	4 23/32	2 5/16	0.438	0.247	4
	14.00	Z-140 IU	43,500	532,700	0.330	3.340	3.805	3.229	6.458	20,213	20,742	HT40	5 1/4	2 11/16	35,900	776,400	21,500	0.83	9	15	16.12	4 15/16	2 9/16	0.442	0.247	
	14.00	Z-140 IU	43,500	532,700	0.330	3.340	3.805	3.229	6.458	20,213	20,742	XT38	4 3/4	2 9/16	31,300	599,600	18,800	0.72	10	15	15.44	4 9/16	2 7/16	0.440	0.236	
	14.00	Z-140 IU	43,500	532,700	0.330	3.340	3.805	3.229	6.458	20,213	20,742	XT39	4 7/8	2 9/16	37,000	729,700	22,200	0.85	10	15	15.67	4 9/16	2 7/16	0.440	0.240	
	14.00	Z-140 IU	43,500	532,700	0.330	3.340	3.805	3.229	6.458	20,213	20,742	GPDS40	5 1/4	2 9/16	36,400	838,300	21,800	0.84	9	12	15.99	5	2 7/16	0.441	0.245	
4	14.00	V-150 IU	46,600	570,700	0.330	3.340	3.805	3.229	6.458	21,656	21,912	HT38	5	2 7/16	33,000	708,100	19,800	0.71	10	15.5	16.13	4 25/32	2 5/16	0.438	0.247	4
	14.00	V-150 IU	46,600	570,700	0.330	3.340	3.805	3.229	6.458	21,656	21,912	HT40	5 1/4	2 11/16	35,900	776,400	21,500	0.77	9	15	16.12	5	2 9/16	0.442	0.247	
	14.00	V-150 IU	46,600	570,700	0.330	3.340	3.805	3.229	6.458	21,656	21,912	XT38	4 3/4	2 7/16	34,200	658,500	20,500	0.73	10	15	15.61	4 19/32	2 5/16	0.438	0.239	
	14.00	V-150 IU	46,600	570,700	0.330	3.340	3.805	3.229	6.458	21,656	21,912	XT39	4 7/8	2 9/16	37,000	729,700	22,200	0.79	10	15	15.67	4 5/8	2 7/16	0.440	0.240	
	14.00	V-150 IU	46,600	570,700	0.330	3.340	3.805	3.229	6.458	21,656	21,912	GPDS40	5 1/4	2 9/16	36,400	838,300	21,800	0.78	9	12	15.99	5 1/32	2 7/16	0.441	0.245	
4	15.70	E-75 IU	25,800	324,100	0.380	3.240	4.322	3.578	7.157	12,469	12,896	NC40	5 1/4	2 13/16	23,500	711,600	12,400	0.91	9	12	17.22	4 7/8	2 11/16	0.421	0.263	4
	15.70	E-75 IU	25,800	324,100	0.380	3.240	4.322	3.578	7.157	12,469	12,896	HT40	5 1/4	2 13/16	31,900	711,600	19,100	1.24	9	15	17.49	4 5/8	2 11/16	0.420	0.268	
	15.70	E-75 IU	25,800	324,100	0.380	3.240	4.322	3.578	7.157	12,469	12,896	4 H90	5 1/2	2 13/16	35,400	913,700	20,400	1.37	9	12	17.67	4 31/32	2 11/16	0.420	0.270	
	15.70	E-75 EU	25,800	324,100	0.380	3.240	4.322	3.578	7.157	12,469	12,896	NC46	6	3	39,200	1,048,400	20,500	1.52	9	12	18.34	5 5/16	2 7/8	0.424	0.281	
	15.70	E-75 IU	25,800	324,100	0.380	3.240	4.322	3.578	7.157	12,469	12,896	XT39	4 7/8	2 9/16	37,000	729,700	22,200	1.43	10	15	17.24	4 5/32	2 7/16	0.415	0.264	
	15.70	E-75 IU	25,800	324,100	0.380	3.240	4.322	3.578	7.157	12,469	12,896	XT40	5 1/4	2 13/16	44,000	751,600	26,400	1.71	10	15	17.59	4 5/16	2 11/16	0.420	0.269	
4	15.70	X-95 IU	32,700	410,500	0.380	3.240	4.322	3.578	7.157	15,794	16,335	NC40	5 1/4	2 9/16	27,800	838,300	14,600	0.85	9	12	17.57	5	2 7/16	0.417	0.269	4
	15.70	X-95 IU	32,700	410,500	0.380	3.240	4.322	3.578	7.157	15,794	16,335	HT40	5 1/4	2 13/16	31,900	711,600	19,100	0.98	9	15	17.49	4 25/32	2 11/16	0.420	0.268	
	15.70	X-95 IU	32,700	410,500	0.380	3.240	4.322	3.578	7.157	15,794	16,335	4 H90	5 1/2	2 13/16	35,400	913,700	20,400	1.08	9	12	17.67	5 3/32	2 11/16	0.420	0.270	
	15.70	X-95 EU	32,700	410,500	0.380	3.240	4.322	3.578	7.157	15,794	16,335	NC46	6	3	39,200	1,048,400	20,500	1.20	9	12	18.49	5 7/16	2 7/8	0.424	0.283	
	15.70	X-95 IU	32,700	410,500	0.380	3.240	4.322	3.578	7.157	15,794	16,335	XT39	4 7/8	2 9/16	37,000	729,700	22,200	1.13	10	15	17.24	4 5/16	2 7/16	0.415	0.264	
	15.70	X-95 IU	32,700	410,500	0.380	3.240	4.322	3.578	7.157	15,794	16,335	XT40	5 1/4	2 13/16	44,000	751,600	26,400	1.35	10	15	17.59	4 15/32	2 11/16	0.420	0.269	
4	15.70	G-105 IU	36,100	453,800	0.380	3.240	4.322	3.578	7.157	17,456	18,055	NC40	5 1/2	2 7/16	30,100	897,200	15,600	0.83	9	12	18.20	5 1/16	2 5/16	0.414	0.278	4
	15.70	G-105 IU	36,100	453,800	0.380	3.240	4.322	3.578	7.157	17,456	18,055	HT40	5 1/4	2 13/16	31,900	711,600	19,100	0.88	9	15	17.49	4 27/32	2 11/16	0.420	0.268	
	15.70	G-105 IU	36,100	453,800	0.380	3.240	4.322	3.578	7.157	17,456	18,055	4 H90	5 1/2	2 13/16	35,400	913,700	20,400	0.98	9	15	18.00	5 5/32	2 11/16	0.420	0.275	
	15.70	G-105 EU	36,100	453,800	0.380	3.240	4.322	3.578	7.157	17,456	18,055	NC46	6	3	39,200	1,048,400	20,500	1.09	9	12	18.49	5 15/32	2 7/8	0.424	0.283	
	15.70	G-105 IU	36,100	453,800	0.380	3.240	4.322	3.578	7.157	17,456	18,055	XT39	4 7/8	2 9/16	37,000	729,700	22,200	1.02	10	15	17.24	4 13/32	2 7/16	0.415	0.264	
	15.70	G-105 IU	36,100	453,800	0.380	3.240	4.322	3.578	7.157	17,456	18,055	XT40	5 1/4	2 13/16	44,000	751,600	26,400	1.22	10	15	17.59	4 17/32	2 11/16	0.420	0.269	
4	15.70	S-135 IU	46,500	583,400	0.380	3.240	4.322	3.578	7.157	22,444	23,213	NC40	5 1/2	2	36,400	1,080,100	18,900	0.78	9	12	18.73	5 1/4	1 7/8	0.409	0.286	4

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
	15.70	S-135 IU	46,500	583,400	0.380	3.240	4.322	3.578	7.157	22,444	23,213	HT40	5 1/4	2 9/16	39,500	838,300	23,700	0.85	9	15	17.88	4 15/16	2 7/16	0.415	0.273	
	15.70	S-135 IU	46,500	583,400	0.380	3.240	4.322	3.578	7.157	22,444	23,213	4 H90	5 3/4	2 11/16	38,400	978,500	21,800	0.83	9	15	18.74	5 5/16	2 9/16	0.417	0.287	
	15.70	S-135 EU	46,500	583,400	0.380	3.240	4.322	3.578	7.157	22,444	23,213	NC46	6	3	39,200	1,048,400	20,500	0.84	9	12	18.49	5 21/32	2 7/8	0.424	0.283	
	15.70	S-135 IU	46,500	583,400	0.380	3.240	4.322	3.578	7.157	22,444	23,213	XT39	4 7/8	2 9/16	37,000	729,700	22,200	0.80	10	15	17.24	4 5/8	2 7/16	0.415	0.264	
	15.70	S-135 IU	46,500	583,400	0.380	3.240	4.322	3.578	7.157	22,444	23,213	XT40	5 1/4	2 13/16	44,000	751,600	26,400	0.95	10	15	17.59	4 3/4	2 11/16	0.420	0.269	
	15.70	S-135 IU	46,500	583,400	0.380	3.240	4.322	3.578	7.157	22,444	23,213	GPDS40	5 1/4	2 9/16	36,400	838,300	21,800	0.78	9	12	17.57	5 1/32	2 7/16	0.417	0.269	
4	15.70	Z-140 IU	48,200	605,000	0.380	3.240	4.322	3.578	7.157	23,275	24,073	HT40	5 1/4	2 9/16	39,500	838,300	23,700	0.82	9	15	17.88	4 31/32	2 7/16	0.415	0.273	4
	15.70	Z-140 IU	48,200	605,000	0.380	3.240	4.322	3.578	7.157	23,275	24,073	XT39	4 7/8	2 9/16	37,000	729,700	22,200	0.77	10	15	17.24	4 21/32	2 7/16	0.415	0.264	
	15.70	Z-140 IU	48,200	605,000	0.380	3.240	4.322	3.578	7.157	23,275	24,073	XT40	5 1/4	2 13/16	44,000	751,600	26,400	0.91	10	15	17.59	4 25/32	2 11/16	0.420	0.269	
	15.70	Z-140 IU	48,200	605,000	0.380	3.240	4.322	3.578	7.157	23,275	24,073	GPDS40	5 1/4	2 9/16	36,400	838,300	21,800	0.76	9	12	17.57	5 1/16	2 7/16	0.417	0.269	
4	15.70	V-150 IU	51,600	648,200	0.380	3.240	4.322	3.578	7.157	24,938	25,793	HT40	5 1/4	2 7/16	41,000	897,200	24,600	0.79	9	15	18.05	5	2 5/16	0.413	0.276	4
	15.70	V-150 IU	51,600	648,200	0.380	3.240	4.322	3.578	7.157	24,938	25,793	XT39	4 7/8	2 9/16	37,000	729,700	22,200	0.72	10	15	17.24	4 23/32	2 7/16	0.415	0.264	
	15.70	V-150 IU	51,600	648,200	0.380	3.240	4.322	3.578	7.157	24,938	25,793	XT40	5 1/4	2 11/16	48,100	816,400	28,900	0.93	10	15	17.79	4 25/32	2 9/16	0.417	0.272	
	15.70	V-150 IU	51,600	648,200	0.380	3.240	4.322	3.578	7.157	24,938	25,793	GPDS40	5 1/4	2 7/16	38,100	897,200	22,900	0.74	9	12	17.74	5 3/32	2 5/16	0.415	0.271	
4 1/2	16.60	E-75 IEU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	NC46	6 1/4	3 1/4	34,000	901,200	17,600	1.10	9	12	19.14	5 13/32	3 1/8	0.585	0.293	4 1/2
	16.60	E-75 EU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	4-1/2 OH	5 7/8	3 3/4	27,300	714,000	14,600	0.89	9	12	17.58	5 15/32	3 5/8	0.596	0.269	
	16.60	E-75 IEU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	4-1/2 FH	6	3	34,800	976,200	17,600	1.13	9	12	19.03	5 3/8	2 7/8	0.580	0.291	
	16.60	E-75 IEU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	4-1/2 H90	6	3 1/4	39,000	938,400	18,800	1.27	9	12	18.61	5 11/32	3 1/8	0.585	0.285	
	16.60	E-75 IEU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	HT46	6 1/4	3 1/4	47,600	901,200	28,600	1.55	9	15	19.59	5 13/32	3 1/8	0.583	0.300	
	16.60	E-75 EU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	NC50	6 5/8	3 3/4	38,100	939,100	19,800	1.24	9	12	19.19	5 23/32	3 5/8	0.595	0.294	
	16.60	E-75 EU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	HT50	6 1/4	3 3/4	52,700	939,100	31,600	1.71	9	15	18.73	5 13/16	3 5/8	0.595	0.287	
	16.60	E-75 IEU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	XT40	5 1/4	3	37,400	648,900	22,400	1.21	10	15	17.92	4 7/8	2 7/8	0.579	0.274	
	16.60	E-75 IEU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	XT46	6	3 1/2	58,100	910,300	34,900	1.89	10	15	18.63	5 5/8	3 3/8	0.589	0.285	
	16.60	E-75 EU	30,800	330,600	0.337	3.826	4.407	4.271	8.543	9,829	10,392	XT50	6 3/8	3 3/4	75,200	1,085,500	45,100	2.44	10	15	19.17	5 31/32	3 5/8	0.595	0.293	
4 1/2	16.60	X-95 IEU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	NC46	6 1/4	3 1/4	34,000	901,200	17,600	0.87	9	12	19.14	5 17/32	3 1/8	0.585	0.293	4 1/2
	16.60	X-95 EU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	4-1/2 OH	5 7/8	3 1/2	33,900	884,800	18,200	0.87	9	12	18.02	5 19/32	3 3/8	0.590	0.276	
	16.60	X-95 IEU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	4-1/2 FH	6	3	34,800	976,200	17,600	0.89	9	12	19.03	5 1/2	2 7/8	0.580	0.291	
	16.60	X-95 IEU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	4-1/2 H90	6	3 1/4	39,000	938,400	18,800	1.00	9	12	18.61	5 15/32	3 1/8	0.585	0.285	
	16.60	X-95 IEU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	HT46	6 1/4	3 1/4	47,600	901,200	28,600	1.22	9	15	19.59	5 13/32	3 1/8	0.583	0.300	
	16.60	X-95 EU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	NC50	6 5/8	3 3/4	38,100	939,100	19,800	0.98	9	12	19.19	5 27/32	3 5/8	0.595	0.294	
	16.60	X-95 EU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	HT50	6 1/4	3 3/4	52,700	939,100	31,600	1.35	9	15	18.73	5 13/16	3 5/8	0.595	0.287	
	16.60	X-95 IEU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	XT40	5 1/4	3	37,400	648,900	22,400	0.96	10	15	17.92	4 7/8	2 7/8	0.579	0.274	
	16.60	X-95 IEU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	XT46	6	3 1/2	58,100	910,300	34,900	1.49	10	15	18.63	5 5/8	3 3/8	0.589	0.285	
	16.60	X-95 EU	39,000	418,700	0.337	3.826	4.407	4.271	8.543	12,450	12,765	XT50	6 3/8	3 3/4	75,200	1,085,500	45,100	1.93	10	15	19.17	5 31/32	3 5/8	0.595	0.293	
4 1/2	16.60	G-105 IEU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	NC46	6 1/4	3	39,700	1,048,400	20,500	0.92	9	12	19.57	5 19/32	2 7/8	0.580	0.299	4 1/2
	16.60	G-105 EU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	4-1/2 OH	6	3 1/4	40,300	1,043,800	21,500	0.94	9	12	18.69	5 21/32	3 1/8	0.585	0.286	
	16.60	G-105 IEU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	4-1/2 FH	6 1/4	2 3/4	40,200	1,111,600	20,100	0.93	9	12	19.96	5 9/16	2 5/8	0.575	0.305	
	16.60	G-105 IEU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	4-1/2 H90	6	3 1/4	39,000	938,400	18,800	0.90	9	12	18.61	5 17/32	3 1/8	0.585	0.285	
	16.60	G-105 IEU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	HT46	6 1/4	3 1/4	47,600	901,200	28,600	1.10	9	15	19.59	5 13/32	3 1/8	0.583	0.300	
	16.60	G-105 EU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	NC50	6 5/8	3 3/4	38,100	939,100	19,800	0.88	9	12	19.19	5 29/32	3 5/8	0.595	0.294	
	16.60	G-105 EU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	HT50	6 1/4	3 3/4	52,700	939,100	31,600	1.22	9	15	18.73	5 13/16	3 5/8	0.595	0.287	
	16.60	G-105 IEU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	XT40	5 1/4	3	37,400	648,900	22,400	0.87	10	15	17.92	4 7/8	2 7/8	0.579	0.274	
	16.60	G-105 IEU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	XT46	6	3 1/2	58,100	910,300	34,900	1.35	10	15	18.63	5 5/8	3 3/8	0.589	0.285	
	16.60	G-105 EU	43,100	462,800	0.337	3.826	4.407	4.271	8.543	13,761	13,825	XT50	6 3/8	3 3/4	75,200	1,085,500	45,100	1.74	10	15	19.17	5 31/32	3 5/8	0.595	0.293	
4 1/2	16.60	S-135 IEU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	NC46	6 1/4	2 3/4	44,900	1,183,900	23,200	0.81	9	12	19.96	5 25/32	2 5/8	0.575	0.305	4 1/2
	16.60	S-135 EU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	4-1/2 OH	6	3	43,400	1,191,100	24,600	0.78	9	12	19.07	5 13/16	2 7/8	0.581	0.292	
	16.60	S-135 IEU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	4-1/2 FH	6 1/4	2 3/4	40,200	1,111,600	20,100	0.72	9	12	19.96	5 3/4	2 5/8	0.575	0.305	
	16.60	S-135 IEU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	4-1/2 H90	6 1/4	2 3/4	51,500	1,221,100	24,600	0.93	9	12	19.96	5 11/16	2 5/8	0.575	0.305	
	16.60	S-135 IEU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	HT46	6 1/4	3 1/4	47,600	901,200	28,600	0.86	9	15	19.59	5 1/2	3 1/8	0.583	0.300	
	16.60	S-135 EU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	NC50	6 5/8	3 1/2	45,100	1,109,900	23,400	0.81	9	12	19.65	6 1/16	3 3/8	0.590	0.301	
	16.60	S-135 EU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	HT50	6 3/8	3 1/2	65,700	1,109,900	39,400	1.18	9	15	19.52	5 13/16	3 3/8	0.589	0.299	
	16.60	S-135 IEU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	XT40	5 1/4	2 13/16	44,000	751,600	26,400	0.79	10	15	18.23	4 15/16	2 11/16	0.575	0.279	
	16.60	S-135 IEU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	XT46	6	3 1/2	58,100	910,300	34,900	1.05	10	15	18.63	5 5/8	3 3/8	0.589	0.285	
	16.60	S-135 EU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	XT50	6 3/8	3 3/4	75,200	1,085,500	45,100	1.35	10	15	19.17	5 31/32	3 5/8	0.595	0.293	
	16.60	S-135 IEU	55,500	595,000	0.337	3.826	4.407	4.271	8.543	17,693	16,773	GPDS46	6 1/4	3 1/4	43,300	901,200	26,000	0.78	9	12	19.14	5 19/32	3 1/8	0.585	0.293	

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
4 1/2	16.60	Z-140 IEU	57,500	617,000	0.337	3.826	4.407	4.271	8.543	18,348	17,228	HT46	6 1/4	3 1/4	47,600	901,200	28,600	0.83	9	15	19.59	5 17/32	3 1/8	0.583	0.300	4 1/2
	16.60	Z-140 EU	57,500	617,000	0.337	3.826	4.407	4.271	8.543	18,348	17,228	HT50	6 3/8	3 1/2	65,700	1,109,900	39,400	1.14	9	15	19.52	5 13/16	3 3/8	0.589	0.299	
	16.60	Z-140 IEU	57,500	617,000	0.337	3.826	4.407	4.271	8.543	18,348	17,228	XT40	5 1/4	2 13/16	44,000	751,600	26,400	0.77	10	15	18.23	4 31/32	2 11/16	0.575	0.279	
	16.60	Z-140 IEU	57,500	617,000	0.337	3.826	4.407	4.271	8.543	18,348	17,228	XT46	6	3 1/2	58,100	910,300	34,900	1.01	10	15	18.63	5 5/8	3 3/8	0.589	0.285	
	16.60	Z-140 EU	57,500	617,000	0.337	3.826	4.407	4.271	8.543	18,348	17,228	XT50	6 3/8	3 3/4	75,200	1,085,500	45,100	1.31	10	15	19.17	5 31/32	3 5/8	0.595	0.293	
	16.60	Z-140 IEU	57,500	617,000	0.337	3.826	4.407	4.271	8.543	18,348	17,228	GPDS46	6 1/4	3 1/4	43,300	901,200	26,000	0.75	9	12	19.14	5 5/8	3 1/8	0.585	0.293	
4 1/2	16.60	V-150 IEU	61,600	661,100	0.337	3.826	4.407	4.271	8.543	19,658	18,103	HT46	6 1/4	3 1/4	47,600	901,200	28,600	0.77	9	15	19.59	5 19/32	3 1/8	0.583	0.300	4 1/2
	16.60	V-150 EU	61,600	661,100	0.337	3.826	4.407	4.271	8.543	19,658	18,103	HT50	6 3/8	3 1/2	65,700	1,109,900	39,400	1.07	9	15	19.52	5 13/16	3 3/8	0.589	0.299	
	16.60	V-150 IEU	61,600	661,100	0.337	3.826	4.407	4.271	8.543	19,658	18,103	XT40	5 1/4	2 13/16	44,000	751,600	26,400	0.71	10	15	18.23	5 1/16	2 11/16	0.575	0.279	
	16.60	V-150 IEU	61,600	661,100	0.337	3.826	4.407	4.271	8.543	19,658	18,103	XT46	6 1/4	3 1/4	70,200	1,069,300	42,100	1.14	10	15	19.74	5 5/8	3 1/8	0.583	0.302	
	16.60	V-150 EU	61,600	661,100	0.337	3.826	4.407	4.271	8.543	19,658	18,103	XT50	6 3/8	3 1/2	81,200	1,256,300	48,700	1.32	10	15	19.67	5 31/32	3 3/8	0.589	0.301	
	16.60	V-150 IEU	61,600	661,100	0.337	3.826	4.407	4.271	8.543	19,658	18,103	GPDS46	6 1/4	3 1/4	43,300	901,200	26,000	0.70	9	12	19.14	5 11/16	3 1/8	0.585	0.293	
4 1/2	20.00	E-75 IEU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	NC46	6 1/4	3	39,700	1,048,400	20,500	1.08	9	12	22.89	5 1/2	2 7/8	0.527	0.350	4 1/2
	20.00	E-75 EU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	4-1/2 OH	6	3 1/2	34,100	884,800	18,200	0.92	9	12	21.64	5 17/32	3 3/8	0.538	0.331	
	20.00	E-75 IEU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	4-1/2 H90	6	3 1/4	39,000	938,400	18,800	1.06	9	12	21.94	5 7/16	3 1/8	0.532	0.336	
	20.00	E-75 IEU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	HT46	6 1/4	3 1/4	47,600	901,200	28,600	1.29	9	15	22.89	5 13/32	3 1/8	0.531	0.350	
	20.00	E-75 EU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	NC50	6 5/8	3 5/8	41,700	1,026,000	21,600	1.13	9	12	22.77	5 13/16	3 1/2	0.540	0.348	
	20.00	E-75 EU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	HT50	6 1/4	3 5/8	59,200	1,026,000	35,500	1.60	9	15	22.31	5 13/16	3 1/2	0.540	0.341	
	20.00	E-75 IEU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	XT46	6	3 1/2	58,100	910,300	34,900	1.57	10	15	21.93	5 5/8	3 3/8	0.537	0.335	
	20.00	E-75 EU	36,900	412,400	0.430	3.640	5.498	5.116	10.232	12,542	12,964	XT50	6 3/8	3 1/2	81,200	1,256,300	48,700	2.20	10	15	22.99	5 31/32	3 3/8	0.537	0.352	
4 1/2	20.00	X-95 IEU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	NC46	6 1/4	3	39,700	1,048,400	20,500	0.85	9	12	22.89	5 21/32	2 7/8	0.527	0.350	4 1/2
	20.00	X-95 EU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	4-1/2 OH	6 1/4	3 1/4	40,700	1,043,800	21,500	0.87	9	12	22.58	5 11/16	3 1/8	0.533	0.345	
	20.00	X-95 IEU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	4-1/2 H90	6	3 1/4	39,000	938,400	18,800	0.84	9	12	21.94	5 9/16	3 1/8	0.532	0.336	
	20.00	X-95 IEU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	HT46	6 1/4	3 1/4	47,600	901,200	28,600	1.02	9	15	22.89	5 13/32	3 1/8	0.531	0.350	
	20.00	X-95 EU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	NC50	6 5/8	3 1/2	45,100	1,109,900	23,400	0.97	9	12	23.00	5 15/16	3 3/8	0.538	0.352	
	20.00	X-95 EU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	HT50	6 1/4	3 1/2	62,700	1,109,900	37,600	1.34	9	15	22.55	5 13/16	3 3/8	0.537	0.345	
	20.00	X-95 IEU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	XT46	6	3 1/2	58,100	910,300	34,900	1.24	10	15	21.93	5 5/8	3 3/8	0.537	0.335	
	20.00	X-95 EU	46,700	522,300	0.430	3.640	5.498	5.116	10.232	15,886	16,421	XT50	6 3/8	3 1/2	81,200	1,256,300	48,700	1.74	10	15	22.99	5 31/32	3 3/8	0.537	0.352	
4 1/2	20.00	G-105 IEU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	NC46	6 1/4	2 3/4	44,900	1,183,900	23,200	0.87	9	12	23.28	5 23/32	2 5/8	0.523	0.356	4 1/2
	20.00	G-105 EU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	4-1/2 OH	6 1/4	3	46,600	1,191,100	24,600	0.90	9	12	22.97	5 3/4	2 7/8	0.528	0.351	
	20.00	G-105 IEU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	4-1/2 H90	6 1/4	3	45,700	1,085,700	21,800	0.88	9	12	22.89	5 5/8	2 7/8	0.527	0.350	
	20.00	G-105 IEU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	HT46	6 1/4	3 1/4	47,600	901,200	28,600	0.92	9	15	22.89	5 7/16	3 1/8	0.531	0.350	
	20.00	G-105 EU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	NC50	6 5/8	3 1/2	45,100	1,109,900	23,400	0.87	9	12	23.00	6 1/32	3 3/8	0.538	0.352	
	20.00	G-105 EU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	HT50	6 1/4	3 1/2	62,700	1,109,900	37,600	1.21	9	15	22.55	5 13/16	3 3/8	0.537	0.345	
	20.00	G-105 IEU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	XT46	6	3 1/2	58,100	910,300	34,900	1.12	10	15	21.93	5 5/8	3 3/8	0.537	0.335	
	20.00	G-105 EU	51,700	577,300	0.430	3.640	5.498	5.116	10.232	17,558	18,149	XT50	6 3/8	3 1/2	81,200	1,256,300	48,700	1.57	10	15	22.99	5 31/32	3 3/8	0.537	0.352	
4 1/2	20.00	S-135 IEU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	NC46	6 1/4	2 3/4	44,900	1,183,900	23,200	0.68	9	12	23.28	5 15/16	2 5/8	0.523	0.356	4 1/2
	20.00	S-135 EU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	4-1/2 OH	6 3/8	2 3/4	52,200	1,326,600	27,400	0.79	9	12	23.61	5 31/32	2 5/8	0.524	0.361	
	20.00	S-135 IEU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	4-1/2 H90	6 3/8	2 3/4	51,700	1,221,100	24,600	0.78	9	12	23.57	5 27/32	2 5/8	0.523	0.360	
	20.00	S-135 IEU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	HT46	6 1/4	3	57,700	1,048,400	34,600	0.87	9	15	23.34	5 9/16	2 7/8	0.526	0.357	
	20.00	S-135 EU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	NC50	6 5/8	3 1/4	51,700	1,269,000	26,800	0.78	9	12	23.43	6 7/32	3 1/8	0.532	0.358	
	20.00	S-135 EU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	HT50	6 3/8	3 1/2	65,700	1,109,900	39,400	0.99	9	15	22.85	5 13/16	3 3/8	0.537	0.350	
	20.00	S-135 IEU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	XT46	6	3 1/4	64,800	1,069,300	38,900	0.98	10	15	22.42	5 5/8	3 1/8	0.531	0.343	
	20.00	S-135 EU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	XT50	6 3/8	3 1/2	81,200	1,256,300	48,700	1.22	10	15	22.99	5 31/32	3 3/8	0.537	0.352	
	20.00	S-135 IEU	66,400	742,200	0.430	3.640	5.498	5.116	10.232	22,575	23,335	GPDS46	6 1/4	3	53,400	1,048,400	32,000	0.80	9	12	22.89	5 21/32	2 7/8	0.527	0.350	
4 1/2	20.00	Z-140 IEU	68,900	769,700	0.430	3.640	5.498	5.116	10.232	23,411	24,199	HT46	6 1/4	3	57,700	1,048,400	34,600	0.84	9	15	23.34	5 19/32	2 7/8	0.526	0.357	4 1/2
	20.00	Z-140 EU	68,900	769,700	0.430	3.640	5.498	5.116	10.232	23,411	24,199	HT50	6 3/8	3 1/2	65,700	1,109,900	39,400	0.95	9	15	22.85	5 27/32	3 3/8	0.537	0.350	
	20.00	Z-140 IEU	68,900	769,700	0.430	3.640	5.498	5.116	10.232	23,411	24,199	XT46	6	3 1/4	64,800	1,069,300	38,900	0.94	10	15	22.42	5 5/8	3 1/8	0.531	0.343	
	20.00	Z-140 EU	68,900	769,700	0.430	3.640	5.498	5.116	10.232	23,411	24,199	XT50	6 3/8	3 1/2	81,200	1,256,300	48,700	1.18	10	15	22.99	5 31/32	3 3/8	0.537	0.352	
	20.00	Z-140 IEU	68,900	769,700	0.430	3.640	5.498	5.116	10.232	23,411	24,199	GPDS46	6 1/4	3	53,400	1,048,400	32,000	0.78	9	12	22.89	5 11/16	2 7/8	0.527	0.350	
4 1/2	20.00	V-150 IEU	73,800	824,700	0.430	3.640	5.498	5.116	10.232	25,083	25,927	HT46	6 1/4	3	57,700	1,048,400	34,600	0.78	9	15	23.34	5 21/32	2 7/8	0.526	0.357	4 1/2
	20.00	V-150 EU	73,800	824,700	0.430	3.640	5.498	5.116	10.232	25,083	25,927	HT50	6 3/8	3 1/2	65,700	1,109,900	39,400	0.89	9	15	22.85	5 29/32	3 3/8	0.537	0.350	
	20.00	V-150 IEU	73,800	824,700	0.430	3.640	5.498	5.116	10.232	25,083	25,927	XT46	6 1/4	3 1/8	75,700	1,144,400	45,400	1.03	10	15	23.26	5 5/8	3	0.528	0.356	
	20.00	V-150 EU	73,800	824,700	0.430	3.640	5.498	5.116	10.232	25,083	25,927	XT50	6 3/8	3 1/2	81,200	1,256,300	48,700	1.10	10	15	22.99	5 31/32	3 3/8	0.537	0.352	
	20.00	V-150 IEU	73,800	824,700	0.430	3.640	5.498	5.116	10.232	25,083	25,927	GPDS46	6 1/4	3	53,400	1,048,400	32,000	0.72	9	12	22.89	5 3/4	2 7/8	0.527	0.350	

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
5	19.50	E-75 IEU	41,200	395,600	0.362	4.276	5.275	5.708	11.415	9,503	9,962	NC50	6 5/8	3 3/4	38,100	939,100	19,800	0.92	9	12	22.12	5 7/8	3 5/8	0.733	0.338	5
	19.50	E-75 IEU	41,200	395,600	0.362	4.276	5.275	5.708	11.415	9,503	9,962	HT50	6 5/8	3 3/4	53,300	939,100	32,000	1.29	9	15	22.57	5 13/16	3 5/8	0.732	0.345	
	19.50	E-75 IEU	41,200	395,600	0.362	4.276	5.275	5.708	11.415	9,503	9,962	5-1/2 FH	7	3 3/4	62,900	1,448,400	33,400	1.53	10	12	23.20	6 3/8	3 5/8	0.732	0.355	
	19.50	E-75 IEU	41,200	395,600	0.362	4.276	5.275	5.708	11.415	9,503	9,962	XT46	6	3 1/2	36,500	910,300	21,900	0.89	10	15	21.69	5 5/8	3 3/8	0.726	0.332	
	19.50	E-75 IEU	41,200	395,600	0.362	4.276	5.275	5.708	11.415	9,503	9,962	XT50	6 1/2	4	38,700	902,900	23,200	0.94	10	15	21.83	5 31/32	3 7/8	0.738	0.334	
5	19.50	X-95 IEU	52,100	501,100	0.362	4.276	5.275	5.708	11.415	12,037	12,026	NC50	6 5/8	3 1/2	45,100	1,109,900	23,400	0.87	9	12	22.61	6 1/32	3 3/8	0.727	0.346	5
	19.50	X-95 IEU	52,100	501,100	0.362	4.276	5.275	5.708	11.415	12,037	12,026	HT50	6 5/8	3 3/4	53,300	939,100	32,000	1.02	9	15	22.57	5 13/16	3 5/8	0.732	0.345	
	19.50	X-95 IEU	52,100	501,100	0.362	4.276	5.275	5.708	11.415	12,037	12,026	5-1/2 FH	7	3 3/4	62,900	1,448,400	33,400	1.21	10	12	23.20	6 1/2	3 5/8	0.732	0.355	
	19.50	X-95 IEU	52,100	501,100	0.362	4.276	5.275	5.708	11.415	12,037	12,026	XT46	6	3 1/2	58,100	910,300	34,900	1.12	10	15	21.69	5 5/8	3 3/8	0.726	0.332	
	19.50	X-95 IEU	52,100	501,100	0.362	4.276	5.275	5.708	11.415	12,037	12,026	XT50	6 1/2	4	62,500	902,900	37,500	1.20	10	15	21.83	5 31/32	3 7/8	0.738	0.334	
5	19.50	G-105 IEU	57,600	553,800	0.362	4.276	5.275	5.708	11.415	13,304	12,999	NC50	6 5/8	3 1/4	51,700	1,269,000	26,800	0.90	9	12	23.07	6 3/32	3 1/8	0.722	0.353	5
	19.50	G-105 IEU	57,600	553,800	0.362	4.276	5.275	5.708	11.415	13,304	12,999	HT50	6 5/8	3 1/2	66,200	1,109,900	39,700	1.15	9	15	23.10	5 13/16	3 3/8	0.726	0.353	
	19.50	G-105 IEU	57,600	553,800	0.362	4.276	5.275	5.708	11.415	13,304	12,999	5-1/2 FH	7	3 3/4	62,900	1,448,400	33,400	1.09	10	12	23.20	6 9/16	3 5/8	0.732	0.355	
	19.50	G-105 IEU	57,600	553,800	0.362	4.276	5.275	5.708	11.415	13,304	12,999	XT46	6	3 1/2	58,100	910,300	34,900	1.01	10	15	21.69	5 5/8	3 3/8	0.726	0.332	
	19.50	G-105 IEU	57,600	553,800	0.362	4.276	5.275	5.708	11.415	13,304	12,999	XT50	6 1/2	4	62,500	902,900	37,500	1.09	10	15	21.83	5 31/32	3 7/8	0.738	0.334	
	19.50	G-105 IEU	57,600	553,800	0.362	4.276	5.275	5.708	11.415	13,304	12,999	GPDS50	6 5/8	3 1/2	60,400	1,110,200	36,200	1.05	9	12	22.61	5 13/16	3 3/8	0.727	0.346	
5	19.50	S-135 IEU	74,100	712,100	0.362	4.276	5.275	5.708	11.415	17,105	15,672	NC50	6 5/8	2 3/4	63,400	1,551,700	32,900	0.86	9	12	23.89	6 5/16	2 5/8	0.713	0.365	5
	19.50	S-135 IEU	74,100	712,100	0.362	4.276	5.275	5.708	11.415	17,105	15,672	HT50	6 5/8	3 1/2	66,200	1,109,900	39,700	0.89	9	15	23.10	5 15/16	3 3/8	0.726	0.353	
	19.50	S-135 IEU	74,100	712,100	0.362	4.276	5.275	5.708	11.415	17,105	15,672	5-1/2 FH	7 1/4	3 1/2	72,500	1,619,200	37,400	0.98	10	12	24.38	6 3/4	3 3/8	0.726	0.373	
	19.50	S-135 IEU	74,100	712,100	0.362	4.276	5.275	5.708	11.415	17,105	15,672	XT46	6	3 1/2	58,100	910,300	34,900	0.78	10	15	21.69	5 23/32	3 3/8	0.726	0.332	
	19.50	S-135 IEU	74,100	712,100	0.362	4.276	5.275	5.708	11.415	17,105	15,672	XT50	6 1/2	3 3/4	77,000	1,085,500	46,200	1.04	10	15	22.39	5 31/32	3 5/8	0.731	0.343	
	19.50	S-135 IEU	74,100	712,100	0.362	4.276	5.275	5.708	11.415	17,105	15,672	GPDS50	6 5/8	3 1/2	60,400	1,110,200	36,200	0.82	9	12	22.61	6 1/32	3 3/8	0.727	0.346	
5	19.50	Z-140 IEU	76,800	738,400	0.362	4.276	5.275	5.708	11.415	17,738	16,079	HT50	6 5/8	3 1/2	66,200	1,109,900	39,700	0.86	9	15	23.10	5 31/32	3 3/8	0.726	0.353	5
	19.50	Z-140 IEU	76,800	738,400	0.362	4.276	5.275	5.708	11.415	17,738	16,079	XT46	6	3 1/2	58,100	910,300	34,900	0.76	10	15	21.69	5 25/32	3 3/8	0.726	0.332	
	19.50	Z-140 IEU	76,800	738,400	0.362	4.276	5.275	5.708	11.415	17,738	16,079	XT50	6 1/2	3 3/4	77,000	1,085,500	46,200	1.00	10	15	22.39	5 31/32	3 5/8	0.731	0.343	
	19.50	Z-140 IEU	76,800	738,400	0.362	4.276	5.275	5.708	11.415	17,738	16,079	GPDS50	6 5/8	3 1/2	60,400	1,110,200	36,200	0.79	9	12	22.61	6 3/32	3 3/8	0.727	0.346	
5	19.50	V-150 IEU	82,300	791,200	0.362	4.276	5.275	5.708	11.415	19,005	16,858	HT50	6 5/8	3 1/2	66,200	1,109,900	39,700	0.80	9	15	23.10	6 1/32	3 3/8	0.726	0.353	5
	19.50	V-150 IEU	82,300	791,200	0.362	4.276	5.275	5.708	11.415	19,005	16,858	XT46	6 1/4	3 1/4	70,200	1,069,300	42,100	0.85	10	15	22.78	5 23/32	3 1/8	0.720	0.348	
	19.50	V-150 IEU	82,300	791,200	0.362	4.276	5.275	5.708	11.415	19,005	16,858	XT50	6 1/2	3 3/4	77,000	1,085,500	46,200	0.94	10	15	22.39	5 31/32	3 5/8	0.731	0.343	
	19.50	V-150 IEU	82,300	791,200	0.362	4.276	5.275	5.708	11.415	19,005	16,858	GPDS50	6 5/8	3 1/2	60,400	1,110,200	36,200	0.73	9	12	22.61	6 5/32	3 3/8	0.727	0.346	
5	25.60	E-75 IEU	52,300	530,100	0.500	4.000	7.069	7.245	14.491	13,125	13,500	NC50	6 5/8	3 1/2	45,100	1,109,900	23,400	0.86	9	12	28.08	6 1/32	3 3/8	0.641	0.430	5
	25.60	E-75 IEU	52,300	530,100	0.500	4.000	7.069	7.245	14.491	13,125	13,500	HT50	6 5/8	3 3/4	53,300	939,100	32,000	1.02	9	15	28.01	5 13/16	3 5/8	0.646	0.428	
	25.60	E-75 IEU	52,300	530,100	0.500	4.000	7.069	7.245	14.491	13,125	13,500	5-1/2 FH	7	3 1/2	62,900	1,619,200	37,400	1.20	10	12	29.16	6 1/2	3 3/8	0.641	0.446	
	25.60	E-75 IEU	52,300	530,100	0.500	4.000	7.069	7.245	14.491	13,125	13,500	XT50	6 5/8	3 3/4	77,300	1,085,500	46,400	1.48	10	15	28.14	5 31/32	3 5/8	0.646	0.430	
5	25.60	X-95 IEU	66,200	671,500	0.500	4.000	7.069	7.245	14.491	16,625	17,100	NC50	6 5/8	3	57,800	1,416,200	30,000	0.87	9	12	28.97	6 7/32	2 7/8	0.631	0.443	5
	25.60	X-95 IEU	66,200	671,500	0.500	4.000	7.069	7.245	14.491	16,625	17,100	HT50	6 5/8	3 1/2	66,200	1,109,900	39,700	1.00	9	15	28.53	5 13/16	3 3/8	0.640	0.436	
	25.60	X-95 IEU	66,200	671,500	0.500	4.000	7.069	7.245	14.491	16,625	17,100	5-1/2 FH	7	3 1/2	62,900	1,619,200	37,400	0.95	10	12	29.16	6 21/32	3 3/8	0.641	0.446	
	25.60	X-95 IEU	66,200	671,500	0.500	4.000	7.069	7.245	14.491	16,625	17,100	XT50	6 5/8	3 3/4	77,300	1,085,500	46,400	1.17	10	15	28.14	5 31/32	3 5/8	0.646	0.430	
5	25.60	G-105 IEU	73,200	742,200	0.500	4.000	7.069	7.245	14.491	18,375	18,900	NC50	6 5/8	2 3/4	63,400	1,551,700	32,900	0.87	9	12	29.36	6 9/32	2 5/8	0.627	0.449	5
	25.60	G-105 IEU	73,200	742,200	0.500	4.000	7.069	7.245	14.491	18,375	18,900	HT50	6 5/8	3 1/2	66,200	1,109,900	39,700	0.90	9	15	28.53	5 29/32	3 3/8	0.640	0.436	
	25.60	G-105 IEU	73,200	742,200	0.500	4.000	7.069	7.245	14.491	18,375	18,900	5-1/2 FH	7 1/4	3 1/2	72,500	1,619,200	37,400	0.99	10	12	29.82	6 23/32	3 3/8	0.640	0.456	
	25.60	G-105 IEU	73,200	742,200	0.500	4.000	7.069	7.245	14.491	18,375	18,900	XT50	6 5/8	3 3/4	77,300	1,085,500	46,400	1.06	10	15	28.14	5 31/32	3 5/8	0.646	0.430	
	25.60	G-105 IEU	73,200	742,200	0.500	4.000	7.069	7.245	14.491	18,375	18,900	GPDS50	6 5/8	3 1/2	60,400	1,110,200	36,200	0.83	9	12	28.08	6 1/32	3 3/8	0.641	0.430	
5	25.60	S-135 IEU	94,100	954,300	0.500	4.000	7.069	7.245	14.491	23,625	24,300	NC50	6 5/8	2 3/4	63,400	1,551,700	32,900	0.67	9	12	29.36	6 17/32	2 5/8	0.627	0.449	5
	25.60	S-135 IEU	94,100	954,300	0.500	4.000	7.069	7.245	14.491	23,625	24,300	HT50	6 5/8	3 1/2	66,200	1,109,900	39,700	0.70	9	15	28.53	6 3/16	3 3/8	0.640	0.436	
	25.60	S-135 IEU	94,100	954,300	0.500	4.000	7.069	7.245	14.491	23,625	24,300	5-1/2 FH	7 1/4	3 1/4	78,700	1,778,300	41,200	0.84	10	12	30.30	6 15/16	3 1/8	0.635	0.464	
	25.60	S-135 IEU	94,100	954,300	0.500	4.000	7.069	7.245	14.491	23,625	24,300	XT50	6 5/8	3 1/2	90,700	1,256,300	54,400	0.96	10	15	28.67	5 31/32	3 3/8	0.640	0.439	
	25.60	S-135 IEU	94,100	954,300	0.500	4.000	7.069	7.245	14.491	23,625	24,300	GPDS50	6 5/8	3 1/2	60,400	1,110,200	36,200	0.64	9	12	28.08	6 9/32	3 3/8	0.641	0.430	
5	25.60	Z-140 IEU	97,500	989,600	0.500	4.000	7.069	7.245	14.491	24,500	25,200	HT50	6 5/8	3 1/4	78,000	1,269,000	46,800	0.80	9	15	29.02	6 1/8	3 1/8	0.634	0.444	5
	25.60	Z-140 IEU	97,500	989,600	0.500	4.000	7.069	7.245	14.491	24,500	25,200	XT50	6 5/8	3 1/2	90,700	1,256,300	54,400	0.93	10	15	28.67	6	3 3/8	0.640	0.439	
	25.60	Z-140 IEU	97,500	989,600	0.500	4.000	7.069	7.245	14.491	24,500	25,200	GPDS50	6 5/8	3 1/4	72,200	1,269,200	43,300	0.74	9	12	28.54	6 7/32	3 1/8	0.636	0.437	
5	25.60	V-150 IEU	104,500	1,060,300	0.500	4.000	7.069	7.245	14.491	26,250	27,000	HT50	6 5/8	3 1/4	78,000	1,269,000	46,800	0.75	9	15	29.02	6 7/32	3 1/8	0.634	0.444	5
	25.60	V-150 IEU	104,500	1,060,300	0.500	4.000	7.069	7.245	14.491	26,250	27,000	XT50	6 5/8	3 3/8	97,000	1,337,300	58,200	0.93	10	15	28.93	6 1/32	3 1/4	0.637	0.443	
	25.60	V-150 IEU	104,500	1,060,300	0.500	4.000	7.069	7.245	14.491	26,250	27,000	GPDS50	6 5/8	3 1/4	72,200	1,269,200	43,300	0.69	9	12	28.54	6 5/16	3 1/8	0.636	0.437	
5 1/2	21.90	E-75 IEU	50,700	437,100	0.361	4.778	5.828	7.031	14.062	8,615	8,413	5-1/2 FH	7	4	57,900	1,265,800	31,200	1.14	10	12	24.83	6 15/32	3 7/8	0.910	0.380	5 1/2

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
	21.90	E-75 IEU	50,700	437,100	0.361	4.778	5.828	7.031	14.062	8,615	8,413	HT55	7	4	77,200	1,265,800	46,300	1.52	10	15	25.32	6 13/32	3 7/8	0.908	0.387	
	21.90	E-75 IEU	50,700	437,100	0.361	4.778	5.828	7.031	14.062	8,615	8,413	XT54	6 3/4	4 1/4	70,400	960,700	42,200	1.39	10	15	24.04	6 7/32	4 1/8	0.915	0.368	
	21.90	E-75 IEU	50,700	437,100	0.361	4.778	5.828	7.031	14.062	8,615	8,413	XT57	7	4 1/4	94,300	1,208,700	56,600	1.86	10	15	24.72	6 15/32	4 1/8	0.915	0.378	
5 1/2	21.90	X-95 IEU	64,200	553,700	0.361	4.778	5.828	7.031	14.062	10,912	10,019	5-1/2 FH	7	3 3/4	65,100	1,448,400	35,700	1.01	10	12	25.45	6 5/8	3 5/8	0.904	0.389	5 1/2
	21.90	X-95 IEU	64,200	553,700	0.361	4.778	5.828	7.031	14.062	10,912	10,019	HT55	7	4	77,200	1,265,800	46,300	1.20	10	15	25.42	6 13/32	3 7/8	0.908	0.389	
	21.90	X-95 IEU	64,200	553,700	0.361	4.778	5.828	7.031	14.062	10,912	10,019	XT54	6 3/4	4 1/4	70,400	960,700	42,200	1.10	10	15	24.04	6 7/32	4 1/8	0.915	0.368	
	21.90	X-95 IEU	64,200	553,700	0.361	4.778	5.828	7.031	14.062	10,912	10,019	XT57	7	4 1/4	94,300	1,208,700	56,600	1.47	10	15	24.72	6 15/32	4 1/8	0.915	0.378	
5 1/2	21.90	G-105 IEU	71,000	612,000	0.361	4.778	5.828	7.031	14.062	12,061	10,753	5-1/2 FH	7 1/4	3 1/2	75,000	1,619,200	40,000	1.06	10	12	26.62	6 11/16	3 3/8	0.898	0.407	5 1/2
	21.90	G-105 IEU	71,000	612,000	0.361	4.778	5.828	7.031	14.062	12,061	10,753	HT55	7	4	77,200	1,265,800	46,300	1.09	10	15	25.42	6 13/32	3 7/8	0.908	0.389	
	21.90	G-105 IEU	71,000	612,000	0.361	4.778	5.828	7.031	14.062	12,061	10,753	XT54	6 3/4	4 1/4	70,400	960,700	42,200	0.99	10	15	24.04	6 7/32	4 1/8	0.915	0.368	
	21.90	G-105 IEU	71,000	612,000	0.361	4.778	5.828	7.031	14.062	12,061	10,753	XT57	7	4 1/4	94,300	1,208,700	56,600	1.33	10	15	24.72	6 15/32	4 1/8	0.915	0.378	
	21.90	G-105 IEU	71,000	612,000	0.361	4.778	5.828	7.031	14.062	12,061	10,753	GPDS55	7	4	74,200	1,292,500	44,500	1.05	10	12	24.83	6 7/16	3 7/8	0.910	0.380	
5 1/2	21.90	S-135 IEU	91,300	786,800	0.361	4.778	5.828	7.031	14.062	15,507	12,679	5-1/2 FH	7 1/2	3	90,200	1,925,500	47,700	0.99	10	12	28.24	6 29/32	2 7/8	0.886	0.432	5 1/2
	21.90	S-135 IEU	91,300	786,800	0.361	4.778	5.828	7.031	14.062	15,507	12,679	HT55	7	4	77,200	1,265,800	46,300	0.85	10	15	25.42	6 5/8	3 7/8	0.908	0.389	
	21.90	S-135 IEU	91,300	786,800	0.361	4.778	5.828	7.031	14.062	15,507	12,679	XT54	6 3/4	4 1/4	70,400	960,700	42,200	0.77	10	15	24.04	6 5/16	4 1/8	0.915	0.368	
	21.90	S-135 IEU	91,300	786,800	0.361	4.778	5.828	7.031	14.062	15,507	12,679	XT57	7	4 1/4	94,300	1,208,700	56,600	1.03	10	15	24.72	6 15/32	4 1/8	0.915	0.378	
	21.90	S-135 IEU	91,300	786,800	0.361	4.778	5.828	7.031	14.062	15,507	12,679	GPDS55	7	4	74,200	1,292,500	44,500	0.81	10	12	24.83	6 11/16	3 7/8	0.910	0.380	
5 1/2	21.90	Z-140 IEU	94,700	816,000	0.361	4.778	5.828	7.031	14.062	16,081	12,957	5-1/2 FH	7 1/2	3	90,200	1,925,500	47,700	0.95	10	12	28.24	6 15/16	2 7/8	0.886	0.432	5 1/2
	21.90	Z-140 IEU	94,700	816,000	0.361	4.778	5.828	7.031	14.062	16,081	12,957	HT55	7	4	77,200	1,265,800	46,300	0.82	10	15	25.42	6 21/32	3 7/8	0.908	0.389	
	21.90	Z-140 IEU	94,700	816,000	0.361	4.778	5.828	7.031	14.062	16,081	12,957	XT54	6 3/4	4 1/4	70,400	960,700	42,200	0.74	10	15	24.04	6 11/32	4 1/8	0.915	0.368	
	21.90	Z-140 IEU	94,700	816,000	0.361	4.778	5.828	7.031	14.062	16,081	12,957	XT57	7	4 1/4	94,300	1,208,700	56,600	1.00	10	15	24.72	6 15/32	4 1/8	0.915	0.378	
	21.90	Z-140 IEU	94,700	816,000	0.361	4.778	5.828	7.031	14.062	16,081	12,957	GPDS55	7	4	74,200	1,292,500	44,500	0.78	10	12	24.83	6 23/32	3 7/8	0.910	0.380	5 1/2
5 1/2	21.90	V-150 IEU	101,400	874,200	0.361	4.778	5.828	7.031	14.062	17,230	13,473	5-1/2 FH	7 1/2	3	90,200	1,925,500	47,700	0.89	10	12	28.24	7	2 7/8	0.886	0.432	
	21.90	V-150 IEU	101,400	874,200	0.361	4.778	5.828	7.031	14.062	17,230	13,473	HT55	7	4	77,200	1,265,800	46,300	0.76	10	15	25.42	6 23/32	3 7/8	0.908	0.389	
	21.90	V-150 IEU	101,400	874,200	0.361	4.778	5.828	7.031	14.062	17,230	13,473	XT54	6 3/4	4	86,600	1,155,100	52,000	0.85	10	15	24.63	6 9/32	3 7/8	0.908	0.377	
	21.90	V-150 IEU	101,400	874,200	0.361	4.778	5.828	7.031	14.062	17,230	13,473	XT57	7	4 1/4	94,300	1,208,700	56,600	0.93	10	15	24.72	6 15/32	4 1/8	0.915	0.378	
	21.90	V-150 IEU	101,400	874,200	0.361	4.778	5.828	7.031	14.062	17,230	13,473	GPDS55	7	4	74,200	1,292,500	44,500	0.73	10	12	24.83	6 25/32	3 7/8	0.910	0.380	5 1/2
5 1/2	24.70	E-75 IEU	56,600	497,200	0.415	4.670	6.630	7.844	15.688	9,903	10,464	5-1/2 FH	7	4	57,900	1,265,800	31,200	1.02	10	12	27.37	6 17/32	3 7/8	0.872	0.419	
	24.70	E-75 IEU	56,600	497,200	0.415	4.670	6.630	7.844	15.688	9,903	10,464	HT55	7	4	77,200	1,265,800	46,300	1.36	10	15	27.85	6 13/32	3 7/8	0.870	0.426	
	24.70	E-75 IEU	56,600	497,200	0.415	4.670	6.630	7.844	15.688	9,903	10,464	XT54	6 3/4	4 1/4	70,400	960,700	42,200	1.24	10	15	26.46	6 7/32	4 1/8	0.877	0.405	
	24.70	E-75 IEU	56,600	497,200	0.415	4.670	6.630	7.844	15.688	9,903	10,464	XT57	7	4 1/4	94,300	1,208,700	56,600	1.67	10	15	27.14	6 15/32	4 1/8	0.877	0.415	5 1/2
5 1/2	24.70	X-95 IEU	71,700	629,800	0.415	4.670	6.630	7.844	15.688	12,544	12,933	5-1/2 FH	7 1/4	3 1/2	75,000	1,619,200	40,000	1.05	10	12	29.07	6 11/16	3 3/8	0.859	0.445	
	24.70	X-95 IEU	71,700	629,800	0.415	4.670	6.630	7.844	15.688	12,544	12,933	HT55	7	4	77,200	1,265,800	46,300	1.08	10	15	27.85	6 13/32	3 7/8	0.870	0.426	
	24.70	X-95 IEU	71,700	629,800	0.415	4.670	6.630	7.844	15.688	12,544	12,933	XT54	6 3/4	4 1/4	70,400	960,700	42,200	0.98	10	15	26.57	6 7/32	4 1/8	0.877	0.406	
	24.70	X-95 IEU	71,700	629,800	0.415	4.670	6.630	7.844	15.688	12,544	12,933	XT57	7	4 1/4	94,300	1,208,700	56,600	1.32	10	15	27.25	6 15/32	4 1/8	0.877	0.417	5 1/2
5 1/2	24.70	G-105 IEU	79,200	696,100	0.415	4.670	6.630	7.844	15.688	13,865	14,013	5-1/2 FH	7 1/4	3 1/2	75,000	1,619,200	40,000	0.95	10	12	29.07	6 25/32	3 3/8	0.859	0.445	
	24.70	G-105 IEU	79,200	696,100	0.415	4.670	6.630	7.844	15.688	13,865	14,013	HT55	7	4	77,200	1,265,800	46,300	0.97	10	15	27.85	6 15/32	3 7/8	0.870	0.426	
	24.70	G-105 IEU	79,200	696,100	0.415	4.670	6.630	7.844	15.688	13,865	14,013	XT54	6 3/4	4 1/4	70,400	960,700	42,200	0.89	10	15	26.57	6 7/32	4 1/8	0.877	0.406	
	24.70	G-105 IEU	79,200	696,100	0.415	4.670	6.630	7.844	15.688	13,865	14,013	XT57	7	4 1/4	94,300	1,208,700	56,600	1.19	10	15	27.25	6 15/32	4 1/8	0.877	0.417	
	24.70	G-105 IEU	79,200	696,100	0.415	4.670	6.630	7.844	15.688	13,865	14,013	GPDS55	7	4	74,200	1,292,500	44,500	0.94	10	12	27.27	6 17/32	3 7/8	0.872	0.417	5 1/2
5 1/2	24.70	S-135 IEU	101,800	895,000	0.415	4.670	6.630	7.844	15.688	17,826	17,023	5-1/2 FH	7 1/2	3	90,200	1,925,500	47,700	0.89	10	12	30.69	7	2 7/8	0.848	0.469	
	24.70	S-135 IEU	101,800	895,000	0.415	4.670	6.630	7.844	15.688	17,826	17,023	HT55	7	4	77,200	1,265,800	46,300	0.76	10	15	27.85	6 23/32	3 7/8	0.870	0.426	
	24.70	S-135 IEU	101,800	895,000	0.415	4.670	6.630	7.844	15.688	17,826	17,023	XT54	6 3/4	4	86,600	1,155,100	52,000	0.85	10	15	27.17	6 9/32	3 7/8	0.870	0.416	
	24.70	S-135 IEU	101,800	895,000	0.415	4.670	6.630	7.844	15.688	17,826	17,023	XT57	7	4 1/4	94,300	1,208,700	56,600	0.93	10	15	27.25	6 15/32	4 1/8	0.877	0.417	
	24.70	S-135 IEU	101,800	895,000	0.415	4.670	6.630	7.844	15.688	17,826	17,023	GPDS55	7	4	74,200	1,292,500	44,500	0.73	10	12	27.27	6 25/32	3 7/8	0.872	0.417	5 1/2
5 1/2	24.70	Z-140 IEU	105,600	928,100	0.415	4.670	6.630	7.844	15.688	18,486	17,489	5-1/2 FH	7 1/2	3	90,200	1,925,500	47,700	0.85	10	12	30.69	7 1/32	2 7/8	0.848	0.469	
	24.70	Z-140 IEU	105,600	928,100	0.415	4.670	6.630	7.844	15.688	18,486	17,489	HT55	7	3 3/4	87,700	1,448,400	52,600	0.83	10	15	28.42	6 21/32	3 5/8	0.863	0.435	
	24.70	Z-140 IEU	105,600	928,100	0.415	4.670	6.630	7.844	15.688	18,486	17,489	XT54	6 3/4	4	86,600	1,155,100	52,000	0.82	10	15	27.17	6 11/32	3 7/8	0.870	0.416	
	24.70	Z-140 IEU	105,600	928,100	0.415	4.670	6.630	7.844	15.688	18,486	17,489	XT57	7	4 1/4	94,300	1,208,700	56,600	0.89	10	15	27.25	6 15/32	4 1/8	0.877	0.417	
	24.70	Z-140 IEU	105,600	928,100	0.415	4.670	6.630	7.844	15.688	18,486	17,489	GPDS55	7 1/8	3 3/4	89,300	1,475,100	53,600	0.85	10	12	28.12	6 23/32	3 5/8	0.865	0.430	5 1/2
5 1/2	24.70	V-150 IEU	113,100	994,400	0.415	4.670	6.630	7.844	15.688	19,807	18,386	5-1/2 FH	7 1/2	3	90,200	1,925,500	47,700	0.80	10	12	30.69	7 3/32	2 7/8	0.848	0.469	
	24.70	V-150 IEU	113,100	994,400	0.415	4.670	6.630	7.844	15.688	19,807	18,386	HT55	7	3 3/4	87,700	1,448,400	52,600	0.78	10	15	28.42	6 23/32	3 5/8	0.863	0.435	
	24.70	V-150 IEU	113,100	994,400	0.415	4.670	6.630	7.844	15.688	19,807	18,386	XT54	6 3/4	4	86,600	1,155,100	52,000	0.77	10	15	27.17	6 7/16	3 7/8	0.870	0.416	
	24.70	V-150 IEU	113,100	994,400	0.415	4.670	6.630	7.844	15.688	19,807	18,386	XT57	7	4	106,200	1,403,100	63,700	0.94	10	15	27.85	6 15/32	3 7/8	0.870	0.426	
	24.70	V-150 IEU	113,100	994,400	0.415	4.670	6.630	7.844	15.688	19,807	18,386	GPDS55	7 1/8	4 1/8	66,600	1,196,700	40,000	0.59	10	12	27.31	6 31/32	4	0.875	0.418	5 7/8

DRILL PIPE DATA TABLES

The following tables provide data for the drill string. Data are given for the pipe body, tool joint, and drill pipe assembly in Class 1 (new) condition. The tool joint sizes displayed represent common O.D. and I. D. configurtions, although additional size combinations are available. Grant Prideco offers all API tool joint connections as well as most non-API connections. Custom specifications and special sizes can be provided to meet specific requirements. The technical data are calculated per API RP7G, 16th Edition, December 1, 1998 and API Spec 5D, 5th Edition, April 30, 2002. While every effort has been made to insure the accuracy of the tables herein, this material is presented as a reference guide only. The technical information contained herein should not be construed as a recommendation. Grant Prideco can not assume responsibility for the results obtained through the use of this material. No expressed and implied warranty is intended. *Tong space is 2" longer than standard

Pipe Data												Tool Joint Data									Assembly Data					
Size OD	Nominal Weight	Grade and Upset Type	Torsional Yield Strength	Tensile Yield Strength	Wall Thickness	Nominal ID	Pipe Body Section Area	Pipe Body Section Modulus	Pipe Body Polar Section Modulus	Internal Pressure	Collapse Pressure	Connection Type	Outside Diameter	Inside Diameter	Torsional Yield Strength	Tensile Yield Strength	Make-up Torque	Torsional Ratio Tool Joint to Pipe	* Pin Tong Space	* Box Tong Space	Adjusted Weight	Minimum Tool Joint O.D. for Prem. Class	Drift Diameter	Capacity	Displace-ment	Size O.D.
5 7/8	23.40	E-75 IEU	58,600	469,000	0.361	5.153	6.254	8.125	16.251	8,065	7,453	XT57	7	4 1/4	94,300	1,208,700	56,600	1.61	10	15	26.48	6 15/32	4 1/8	1.055	0.405	5 7/8
5 7/8	23.40	X-95 IEU	74,200	594,100	0.361	5.153	6.254	8.125	16.251	10,216	8,775	XT57	7	4 1/4	94,300	1,208,700	56,600	1.27	10	15	26.48	6 15/32	4 1/8	1.055	0.405	5 7/8
5 7/8	23.40	G-105 IEU	82,000	656,600	0.361	5.153	6.254	8.125	16.251	11,291	9,362	XT57	7	4 1/4	94,300	1,208,700	56,600	1.15	10	15	26.48	6 15/32	4 1/8	1.055	0.405	5 7/8
5 7/8	23.40	S-135 IEU	105,500	844,200	0.361	5.153	6.254	8.125	16.251	14,517	10,825	XT57	7	4 1/4	94,300	1,208,700	56,600	0.89	10	15	26.48	6 15/32	4 1/8	1.055	0.405	5 7/8
5 7/8	23.40	Z-140 IEU	109,400	875,500	0.361	5.153	6.254	8.125	16.251	15,054	11,023	XT57	7	4 1/4	94,300	1,208,700	56,600	0.86	10	15	26.48	6 17/32	4 1/8	1.055	0.405	5 7/8
5 7/8	23.40	V-150 IEU	117,200	938,000	0.361	5.153	6.254	8.125	16.251	16,130	11,376	XT57	7	4 1/4	94,300	1,208,700	56,600	0.80	10	15	26.48	6 5/8	4 1/8	1.055	0.405	5 7/8
5 7/8	26.30	E-75 IEU	65,500	533,900	0.415	5.045	7.119	9.083	18.165	9,271	9,558	XT57	7	4 1/4	94,300	1,208,700	56,600	1.44	10	15	29.12	6 15/32	4 1/8	1.014	0.445	5 7/8
5 7/8	26.30	X-95 IEU	83,000	676,300	0.415	5.045	7.119	9.083	18.165	11,744	11,503	XT57	7	4 1/4	94,300	1,208,700	56,600	1.14	10	15	29.12	6 15/32	4 1/8	1.014	0.445	5 7/8
5 7/8	26.30	G-105 IEU	91,700	747,400	0.415	5.045	7.119	9.083	18.165	12,980	12,414	XT57	7	4 1/4	94,300	1,208,700	56,600	1.03	10	15	29.12	6 15/32	4 1/8	1.014	0.445	5 7/8
5 7/8	26.30	S-135 IEU	117,900	961,000	0.415	5.045	7.119	9.083	18.165	16,688	14,892	XT57	7	4 1/4	94,300	1,208,700	56,600	0.80	10	15	29.12	6 5/8	4 1/8	1.014	0.445	5 7/8
5 7/8	26.30	Z-140 IEU	122,300	996,600	0.415	5.045	7.119	9.083	18.165	17,306	15,266	XT57	7	4 1/4	94,300	1,208,700	56,600	0.77	10	15	29.12	6 21/32	4 1/8	1.014	0.445	5 7/8
5 7/8	26.30	V-150 IEU	131,000	1,067,800	0.415	5.045	7.119	9.083	18.165	18,543	15,976	XT57	7	4 1/4	94,300	1,208,700	56,600	0.72	10	15	29.12	6 3/4	4 1/8	1.014	0.445	6 5/8
6 5/8	25.20	E-75 IEU	70,600	489,500	0.330	5.965	6.526	9.786	19.572	6,538	4,788	6-5/8 FH	8	5	73,700	1,448,400	38,400	1.04	10	13	28.79	7 7/16	4 7/8	1.418	0.440	
	25.20	E-75 IEU	70,600	489,500	0.330	5.965	6.526	9.786	19.572	6,538	4,788	HT65	8	5	99,700	1,448,400	59,800	1.41	10	16	29.38	7 11/32	4 7/8	1.415	0.449	
	25.20	E-75 IEU	70,600	489,500	0.330	5.965	6.526	9.786	19.572	6,538	4,788	XT65	8	5	135,300	1,543,700	81,200	1.92	10	15	29.18	7 11/32	4 7/8	1.416	0.446	6 5/8
6 5/8	25.20	X-95 IEU	89,400	620,000	0.330	5.965	6.526	9.786	19.572	8,281	5,321	6-5/8 FH	8	5	73,700	1,448,400	38,400	0.82	10	13	28.79	7 5/8	4 7/8	1.418	0.440	
	25.20	X-95 IEU	89,400	620,000	0.330	5.965	6.526	9.786	19.572	8,281	5,321	HT65	8	5	99,700	1,448,400	59,800	1.12	10	16	29.38	7 11/32	4 7/8	1.415	0.449	
	25.20	X-95 IEU	89,400	620,000	0.330	5.965	6.526	9.786	19.572	8,281	5,321	XT65	8	5	135,300	1,543,700	81,200	1.51	10	15	29.18	7 11/32	4 7/8	1.416	0.446	6 5/8
6 5/8	25.20	G-105 IEU	98,800	685,200	0.330	5.965	6.526	9.786	19.572	9,153	5,500	6-5/8 FH	8 1/4	4 3/4	86,200	1,678,100	44,600	0.87	10	13	30.25	7 11/16	4 5/8	1.409	0.463	
	25.20	G-105 IEU	98,800	685,200	0.330	5.965	6.526	9.786	19.572	9,153	5,500	HT65	8	5	99,700	1,448,400	59,800	1.01	10	16	29.38	7 13/32	4 7/8	1.415	0.449	
	25.20	G-105 IEU	98,800	685,200	0.330	5.965	6.526	9.786	19.572	9,153	5,500	XT65	8	5	135,300	1,543,700	81,200	1.37	10	15	29.18	7 11/32	4 7/8	1.416	0.446	6 5/8
6 5/8	25.20	S-135 IEU	127,000	881,000	0.330	5.965	6.526	9.786	19.572	11,768	6,036	6-5/8 FH	8 1/2	4 1/4	109,200	2,102,300	56,100	0.86	10	13	32.36	7 29/32	4 1/8	1.394	0.495	
	25.20	S-135 IEU	127,000	881,000	0.330	5.965	6.526	9.786	19.572	11,768	6,036	HT65	8	5	99,700	1,448,400	59,800	0.79	10	16	29.38	7 5/8	4 7/8	1.415	0.449	
	25.20	S-135 IEU	127,000	881,000	0.330	5.965	6.526	9.786	19.572	11,768	6,036	XT65	8	5	135,300	1,543,700	81,200	1.07	10	15	29.18	7 11/32	4 7/8	1.416	0.446	
	25.20	S-135 IEU	127,000	881,000	0.330	5.965	6.526	9.786	19.572	11,768	6,036	GPDS65	8	4 7/8	107,500	1,596,400	64,500	0.85	10	13	29.13	7 5/8	4 3/4	1.414	0.446	6 5/8
6 5/8	25.20	Z-140 IEU	131,700	913,700	0.330	5.965	6.526	9.786	19.572	12,204	6,121	6-5/8 FH	8 1/2	4 1/4	109,200	2,102,300	56,100	0.83	10	13	32.36	7 31/32	4 1/8	1.394	0.495	
	25.20	Z-140 IEU	131,700	913,700	0.330	5.965	6.526	9.786	19.572	12,204	6,121	HT65	8	5	99,700	1,448,400	59,800	0.76	10	16	29.38	7 11/16	4 7/8	1.415	0.449	
	25.20	Z-140 IEU	131,700	913,700	0.330	5.965	6.526	9.786	19.572	12,204	6,121	XT65	8	5	135,300	1,543,700	81,200	1.03	10	15	29.18	7 11/32	4 7/8	1.416	0.446	
	25.20	Z-140 IEU	131,700	913,700	0.330	5.965	6.526	9.786	19.572	12,204	6,121	GPDS65	8 1/4	4 7/8	108,200	1,596,400	64,900	0.82	10	13	29.91	7 21/32	4 3/4	1.413	0.458	6 5/8
6 5/8	25.20	V-150 IEU	141,200	978,900	0.330	5.965	6.526	9.786	19.572	13,075	6,260	6-5/8 FH	8 1/2	4 1/4	109,200	2,102,300	56,100	0.77	10	13	32.36	8 1/32	4 1/8	1.394	0.495	
	25.20	V-150 IEU	141,200	978,900	0.330	5.965	6.526	9.786	19.572	13,075	6,260	HT65	8	5	99,700	1,448,400	59,800	0.71	10	16	29.38	7 3/4	4 7/8	1.415	0.449	
	25.20	V-150 IEU	141,200	978,900	0.330	5.965	6.526	9.786	19.572	13,075	6,260	XT65	8	5	135,300	1,543,700	81,200	0.96	10	15	29.18	7 11/32	4 7/8	1.416	0.446	
	25.20	V-150 IEU	141,200	978,900	0.330	5.965	6.526	9.786	19.572	13,075	6,260	GPDS65	8 1/4	4 7/8	108,200	1,596,400	64,900	0.77	10	13	29.91	7 3/4	4 3/4	1.413	0.458	6 5/8
6 5/8	27.70	E-75 IEU	76,300	534,200	0.362	5.901	7.123	10.578	21.156	7,172	5,894	6-5/8 FH	8	5	73,700	1,448,400	38,400	0.97	10	13	30.61	7 1/2	4 7/8	1.389	0.468	
	27.70	E-75 IEU	76,300	534,200	0.362	5.901	7.123	10.578	21.156	7,172	5,894	HT65	8	5	99,700	1,448,400	59,800	1.31	10	16	31.19	7 11/32	4 7/8	1.386	0.477	
	27.70	E-75 IEU	76,300	534,200	0.362	5.901	7.123	10.578	21.156	7,172	5,894	XT65	8	5	135,300	1,543,700	81,200	1.77	10	15	31.00	7 11/32	4 7/8	1.387	0.474	6 5/8
6 5/8	27.70	X-95 IEU	96,600	676,700	0.362	5.901	7.123	10.578	21.156	9,084	6,755	6-5/8 FH	8 1/4	4 3/4	86,200	1,678,100	44,600	0.89	10	13	32.07	7 11/16	4 5/8	1.381	0.491	
	27.70	X-95 IEU	96,600	676,700	0.362	5.901	7.123	10.578	21.156	9,084	6,755	HT65	8	5	99,700	1,448,400	59,800	1.03	10	16	31.19	7 3/8	4 7/8	1.386	0.477	
	27.70	X-95 IEU	96,600	676,700	0.362	5.901	7.123	10.578	21.156	9,084	6,755	XT65	8	5	135,300	1,543,700	81,200	1.40	10	15	31.00	7 11/32	4 7/8	1.387	0.474	6 5/8
6 5/8	27.70	G-105 IEU	106,800	747,900	0.362	5.901	7.123	10.578	21.156	10,040	7,103	6-5/8 FH	8 1/4	4 3/4	86,200	1,678,100	44,600	0.81	10	13	32.07	7 3/4	4 5/8	1.381	0.491	
	27.70	G-105 IEU	106,800	747,900	0.362	5.901	7.123	10.578	21.156	10,040	7,103	HT65	8	5	99,700	1,448,400	59,800	0.93	10	16	31.19	7 15/32	4 7/8	1.386	0.477	
	27.70	G-105 IEU	106,800	747,900	0.362	5.901	7.123	10.578	21.156	10,040	7,103	XT65	8	5	135,300	1,543,700	81,200	1.27	10	15	31.00	7 11/32	4 7/8	1.387	0.474	6 5/8
6 5/8	27.70	S-135 IEU	137,300	961,600	0.362	5.901	7.123	10.578	21.156	12,909	7,813	6-5/8 FH	8 1/2	4 1/4	109,200	2,102,300	56,100	0.80	10	13	34.18	8	4 1/8	1.365	0.523	
	27.70	S-135 IEU	137,300	961,600	0.362	5.901	7.123	10.578	21.156	12,909	7,813	HT65	8	5	99,700	1,448,400	59,800	0.73	10	16	31.19	7 23/32	4 7/8	1.386	0.477	
	27.70	S-135 IEU	137,300	961,600	0.362	5.901	7.123	10.578	21.156	12,909	7,813	XT65	8	5	135,300	1,543,700	81,200	0.99	10	15	31.00	7 11/32	4 7/8	1.387	0.474	
	27.70	S-135 IEU	137,300	961,600	0.362	5.901	7.123	10.578	21.156	12,909	7,813	GPDS65	8	4 7/8	107,500	1,596,400	64,500	0.78	10	13	30.96	7 23/32	4 3/4	1.385	0.474	6 5/8
6 5/8	27.70	Z-140 IEU	142,400	997,200	0.362	5.901	7.123	10.578	21.156	13,387	7,881	6-5/8 FH	8 1/2	4 1/4	109,200	2,102,300	56,100	0.77	10	13	34.18	8 1/32	4 1/8	1.365	0.523	
	27.70	Z-140 IEU	142,400	997,200	0.362	5.901	7.123	10.578	21.156	13,387	7,881	HT65	8	5	99,700	1,448,400	59,800	0.70	10	16	31.19	7 3/4	4 7/8	1.386	0.477	
	27.70	Z-140 IEU	142,400	997,200	0.362	5.901	7.123	10.578	21.156	13,387	7,881	XT65	8	5	135,300	1,543,700	81,200	0.95	10	15	31.00	7 11/32	4 7/8	1.387	0.474	
	27.70	Z-140 IEU	142,400	997,200	0.362	5.901	7.123	10.578	21.156	13,387	7,881	GPDS65	8 1/4	4 7/8	108,200	1,596,400	64,900	0.76	10	13	31.74	7 3/4	4 3/4	1.385	0.485	6 5/8
6 5/8	27.70	V-150 IEU	152,600	1,068,400	0.362	5.901	7.123	10.578	21.156	14,343	7,970	6-5/8 FH	8 1/2	4 1/4	109,200	2,102,300	56,100	0.72	10	13	34.18	8 1/8	4 1/8	1.365	0.523	
	27.70	V-150 IEU	152,600	1,068,400	0.362	5.901	7.123	10.578	21.156	14,343	7,970	HT65	8	5	99,700	1,448,400	59,800	0.65	10	16	31.19	7 27/32	4 7/8	1.386	0.477	
	27.70	V-150 IEU	152,600	1,068,400	0.362	5.901	7.123	10.578	21.156	14,343	7,970	XT65	8	5	135,300	1,543,700	81,200	0.89	10	15	31.00	7 7/16	4 7/8	1.387	0.474	
	27.70	V-150 IEU	152,600	1,068,400	0.362	5.901	7.123	10.578	21.156	14,343	7,970	GPDS65	8 1/4	4 7/8	108,200	1,596,400	64,900	0.71	10	13	31.74	7 27/32	4 3/4	1.385	0.485	